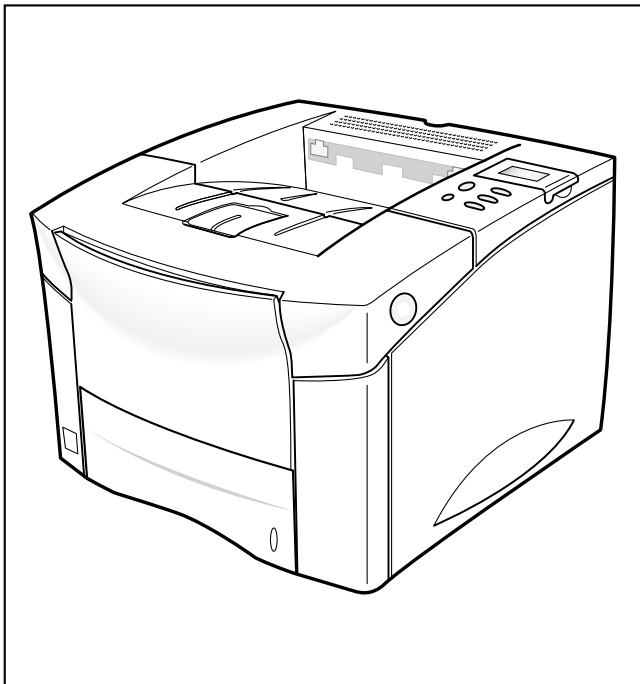


SAMSUNG

ML-7300 Series

SERVICE *Manual*

LASER PRINTER



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1. Precautions

1-1 Safety precautions

Read each caution carefully

1. Do not use the printer near water or when exposed to inclement weather.
2. Do not place this printer on an unstable cart, stand or table, the product may fall, causing serious damage to the product.
3. Slots and openings on the cabinet are provided for ventilation. To ensure reliable operation and to protect the printer from overheating, do not block or cover any of these openings. Do not place the printer in an enclosure unless the enclosure provides adequate ventilation.
4. Never push any kind of objects into the printer through the cabinet ventilation slots as they may touch dangerous high voltage points, create short circuits, cause a fire, or produce an electrical shock. Never spill any kind of liquid on the printer.
5. Do not place the printer in a location where someone may trip on the cord.
6. Select a work surface that is large enough to hold the printer.
7. Operate this printer using the power source (110V, 220V, etc) indicated on the marking label. If you are not sure of the type of power source available, consult your dealer or local power company.
8. If you need to use an extension power cord with this printer, make sure that it uses a three-wire grounded cord and that the total ampere ratings for all of the products using the extension, do not exceed the extension cord ampere rating.
9. Do not allow anything to rest on the power cord or data communications cable.
10. Unplug this printer from the wall outlet before cleaning. Do not use liquid cleaners or aerosol sprays. Use a damp cloth for cleaning.
11. Do not touch the surface of the photo-sensitive drum as marks or scratches may impair print quality.
12. Do not expose the drum unit to direct light for prolonged periods.
13. Use only standard papers, OHP films and approved envelopes.

2. Reference Information

2-1 Abbreviations and Acronyms

Tables 2-1 and 2-2 List abbreviations and acronyms which may be found in this service manual.

Table 2-1. Abbreviations

Abbv	Definition	Abbv	Definition
amps	amperes	lb	pound(s)
		lin	linearity
ass'y	assembly	lock	bus lock
badac	bad assess	mm	millimeter(s)
		neg	negative
bps	bits per second	od	open drain
clk	clock	OSC	oscillator
cm	centimeter(s)	OUT	output
CON	connector	PIC	picture
GND	ground	pos	positive or position
HLDA	hold acknowledge	pot	potential
HLDAR	hold acknowledge received	psynrq	page synchronization request
HLDR	hold request	pwr	power
HOR	horizontal	qty	quantity
in	inch(es) or input	sw	switch
INTA	interrupt Acknowledge	sync	synchronous or synchronization
		tach	tachometer
INT	Interrupt	Vcc	collector supply voltage(dc)
INTR	Interrupt request	vert	vertical
I/O	Input and Output	Vp-p	peak-to-peak voltage
mpx	multiplex	VR	variable resistor

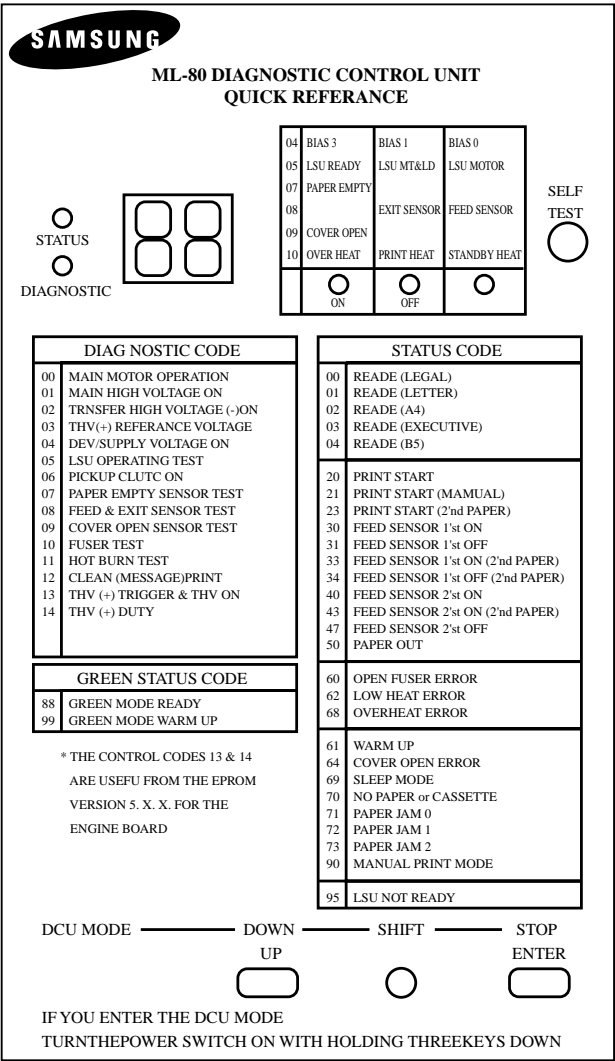
Table 2-2. Acronyms

Acronym	Definition	Acronym	Definition
ABL	Automatic Blanking Limiter	IDE	Intelligent Drive electronics or Imbedded Drive Electronics
ACC	Automatic Color Control	IF	Intermediate Frequency
ADC	Analog to Digital Converter	IPM	Images Per Minute
ADS	Address/Data Status	ISA	Industry Standard Architecture
ALE	Address-Latch Enable	KBC	Keyboard Controller
ASCII	American Standard Code for Information Interchange	LAD	Local Address/Data Bus
BIOS	Basic Input/Output System	LCD	Liquid Crystal Display
BPF	Band Pass Filter	LED	Light Emitting Diode
BPS	Bits Per Second	MCA	Micro Channel Architecture
CCFT	Cold Cathode Fluorescent Tube	MDA	Monochrome Display Adapter
CGA	Color Graphics Adapter	NC	No Connection
CMOS	Complementary Metal Oxide Semiconductor	NF	Noise Figure or Noise Factor
CPU	Central Processing Unit	PA	Power Amplifier
CRT	Cathode Ray Tube	PBA	Printed Board Assembly
CRU	Customer Replacement Unit	PBM	Primary Bus Master
DMA	Direct Memory Access or Dynamic Memory Address	PCB	Printed Circuit Board
DMAC	Direct Memory Access Controller	PCMCIA	Personal Computer Memory Card International Association
DVM	Digital Voltmeter	PLCC	Plastic Leaded Chip Carrier
EEPROM	Electrically Erasable Programmable read Only Memory	PMS	Power Management System
EGA	Enhanced Graphics Adapter	POST	Power On Self Test
EISA	Extended Industry Standard Architecture	PPM	Pages Per Minute
ESDI	Enhanced Small Device Interface	PQFP	Plastic Quad Flat Package
FDC	Floppy Disk Controller	QFP	Quad Flat Package
FDD	Floppy Disk Drive	RAM	Random Access Memory
FL	Fluorescent Light(Lamp)	ROM	Read Only Memory
HDD	Hard Disk Drive	RTC	Real-Time Clock
HPF	High Pass Filter	SBM	Secondary Bus Master
SCSI	Small Computer Systems Interface	TSTN	Triple Super Twisted Nematic
SIO	Serial Input/Output Controller	UHF	Ultrahigh Frequency
SOP	Small Outline Package	VCO	Voltage Controlled Oscillator
SSOP	Shrink Small Outline Package	VESA	Video Electronics Standard Association
STN	Super Twisted Nematic	VGA	Video Graphics Array
SCC	Serial Communications Controller	VHF	Very High Frequency
TFT	Thin Film Transistor	XO	Crystal Oscillator
TS	Tri-State		
TSOP	Thin Small Outline Package		

2-2. Diagnostic Control Unit

2-2-1. Abstract

The diagnostic Control Unit(DCU) is useful for troubleshooting the Laser beam printer ML Series engines, and for checking printer status.
The DCU can be used in common for ML series, but each model has several different code description. Refer to the code description for ML-7300 in next page.



2-2-2. List of code description

Code Description			
1. DIAGNOSTIC CODE		2.STATUS CODE	
00	MAIN MOTOR OPERATING	78	SYSTEM ERROR
01	MAIN HIGH VOLT ON / OFF TEST	00	Ready to print from LEGAL paper tray
02	THV (-) ON / OFF TEST	01	Ready to print form LETTER paper tray
03	THV (+) ON / OFF TEST	02	Ready to print form A4 paper tray
04	DEV, SUPPLY ON / OFF TEST	03	Ready to print form EXEC paper tray
05	LSU OPERATING TEST	04	Ready to print from B5 paper tray
06	PICK UP CLUTCH ON	05	Ready to print from FOLIO paper tray
07	PE, DS1, DS2 SENSOR TEST	20	PRINT START (1st CASSETTE)
08	MP, EXIT, FEED SENSOR TEST	21	PRINT START (MULTI PURPOSE)
09	TOP & REAR COVER OPEN, OUT BIN SENSOR TEST	22	PRINT START (2'nd CASSETTE)
10	FUSER TEST	23	PRINT START (DUPLEX)
11	HOT BURN TEST	50	PAPER OUT
12	DUPLEX CLUTCH TEST	60	OPEN FUSER ERROR
13	MULTI PURPOSE CLUTCH TEST	62	LOW HEATER ERROR
14	THERMISTOR 2 TEST	68	OVER HESTER ERROR
15	PAPER SIZE SENSOR TEST	61	WARM-UP
16	FAN SPEED TEST	64	COVER OPEN ERROR
17	PTL TEST	69	SLEEP MODE
		70	NO PAPER or CASSETTE
		71	PAPER JAM "0"
		72	PAPER JAM "1"
		73	PAPER JAM "2"
		74	DUPLEX JAM "1"
		75	DUPLEX JAM "2"
		76	OUT BIN FULL
		95	LSU NOT READY

2-2-3. The Diagnostic Control Unit (DCU) Operating Guide

The DCU has functions as follows:

1) Engine Status and Error Code Display mode

— Display the engine status and error status code. Refer to List of Code Description.

2) Self-Test mode.

— When the engine is ready, this button starts printing a streak pattern.

3) Green mode

— Transfer high Voltage adjustment mode

With the power off, hold down the Self-Test button and turn on the pinter. Continue holding down the button for 4 seconds to start Green mode.

4) Diagnostic Control mode.

— With the power off, hold down the 3 button (up/down, shift, stop/enter) and turn on the printer

Continue holding down the button for 5 seconds to start Diagnostic Control mode on the engine.

— The DCU has three diagnostic control buttons.

UP : Steps the function of the other two buttons:

SHIFT : Controls the function of the other two buttons:

SHIFT+UP means step down and SHIFT+START means stop.

START : Starts or stops the current diagnostic test.

Code	Key	Operation	LED Display
00	ENTER	Run Main Motor	Lighten ON LED
	SHIFT+STOP	Stop Main Motor	Lighten OFF LED
	UP	Increment DCU Code No. (01, MHV)	
	SHIFT+DOWN	Decrement DCU code No. (13, MP)	
01	ENTER	MHV ON	Lighten ON LED
	SHIFT+STOP	MHV OFF	Lighten OFF LED
	UP	Increment DCU Code No. (02, THV Negative)	
	SHIFT+DOWN	Decrement DCU code No. (00, Main Motor)	
02	ENTER	THV Negative ON	Lighten ON LED
	SHIFT+STOP	THV Negative OFF	Lighten OFF LED
	UP	Increment DCU Code No. (03, THV)	
	SHIFT+DOWN	Decrement DCU code No. (02, MHV)	
03	ENTER	THV ON	Lighten ON LED
	SHIFT+STOP	THV OFF	Lighten OFF LED
	UP	Increment DCU Code No. (04, Dev)	
	SHIFT+DOWN	Decrement DCU code No. (02, THV Negative)	
04	ENTER	DEV, SUPPLY ON	Lighten ON LED
	SHIFT+STOP	DEV, SUPPLY ON	Lighten OFF LED
	UP	Increment DCU Code No. (05, LSU)	
	SHIFT+DOWN	Decrement DCU code No. (03, THV)	
05	ENTER	LSU Motor On	Lighten 3rd LED
	UP	LSU Ready and LD On	Lighten 1, 2nd LED
	SHIFT+STOP	LSU Motor OFF	
	UP	Increment DCU Code No. (06, Pickup Clutch)	
	SHIFT+DOWN	Decrement DCU code No. (04, Dev)	

Code	Key	Operation	LED Display
06	ENTER	Pickup Clutch ON	Lighten ON LED
	SHIFT+STOP	Pickup Clutch OFF	Lighten OFF LED
	UP	Increment DCU Code No. (07, Sensor TEST)	
	SHIFT+DOWN	Decrement DCU code No. (06, Pickup Clutch)	
07	No Action	Paper Empty Sensor ON/OFF	1st LED ON/OFF
	No Action	Duplex 1 Sensor ON/OFF	2nd LED ON/OFF
	No Action	Duplex 2 Sensor ON/OFF	3rd LED ON/OFF
	UP	Increment DCU Code No. (08, Sensor TEST)	
	SHIFT+DOWN	Decrement DCU Code No. (06, Pickup Clutch)	
08	No Action	Multi Purpose Sensor ON/OFF	1st LED ON/OFF
	No Action	Exit Sensor ON/OFF	2nd LED ON/OFF
	No Action	Feed Sensor ON/OFF	3rd LED ON/OFF
	UP	Increment DCU Code No. (09, Sensor TEST)	
	SHIFT+DOWN	Decrement DCU Code No. (07, Sensor TEST)	
09	No Action	Cover Open Sensor ON/OFF	1st LED ON/OFF
	No Action	Cover Open Sensor ON/OFF	2nd LED ON/OFF
	No Action	Out Bin Sensor ON/OFF	3rd LED ON/OFF
	UP	Increment DCU Code No. (10, Fuser TEST)	
	SHIFT+DOWN	Decrement DCU Code No. (08, Sensor Clutch)	
10	ENTER	Fuser ON	Lighten ON LED
	SHIFT+STOP	Fuser OFF	Lighten OFF LED
	UP	Increment DCU Code No. (04, Dev)	
	SHIFT+DOWN	Decrement DCU code No. (02, THV Negative)	
12	ENTER	Duplex Clutch ON	Lighten ON LED
	SHIFT+STOP	Duplex Clutch OFF	Lighten OFF LED
	UP	Increment DCU Code No. (13, MP Clutch)	
	SHIFT+DOWN	Decrement DCU code No. (11, Self-Test)	
13	ENTER	Multi Purpose Clutch ON	Lighten ON LED
	SHIFT+STOP	Multi Purpose Clutch OFF	Lighten OFF LED
	UP	Increment DCU Code No. (14, Thermistor 2 Test)	
	SHIFT+DOWN	Decrement DCU code No. (12, Duplex Clutch)	
14	No Action	Temperature $\leq 15^{\circ}\text{C}$	1st LED ON
	No Action	$15^{\circ}\text{C} < \text{Temperature} < 30^{\circ}\text{C}$	2nd LED ON
	No Action	Temperature $\geq 30^{\circ}\text{C}$	3rd LED ON
	No Action	Thermistor 2 Open	All LED ON
	No Action	Thermistor 2 Short	All LED OFF
	UP	Increment DCU code No. (15, Cassette sensor TEST)	
	SHIFT + DOWN	Decrement DCU Code No. (13, MP Clutch TEST)	
15	No Action	Cassette Sensor 1 ON/OFF	1st LED ON/OFF
	No Action	Cassette Sensor 2 ON/OFF	2nd LED ON/OFF
	No Action	Cassette Sensor 3 ON/OFF	3rd LED ON/OFF
	UP	Increment DCU Code No. (16, Fan Speed TEST)	
	SHIFT + DOWN	Decrement DCU Code No. (14, Thermistor 2 Test)	
16	Enter	Fast Speed	
	UP	Low Speed	2nd LED ON/OFF
	SHIFT + STOP	Fan OFF	3rd LED ON/OFF
	UP	Increment DCU Code No. (17, PTL TEST)	
	SHIFT + DOWN	Decrement DCU Code No. (15, Cassette sensor TEST)	
17	Enter	Dark Light	
	UP	Bright Light	2nd LED ON/OFF
	SHIFT + STOP	Light OFF	3rd LED ON/OFF
	UP	Increment DCU Code No. (00, Main Motor)	
	SHIFT + DOWN	Decrement DCU Code No. (16, Fan Speed TEST)	

3 Product Information

Specifications are correct at the time of printing. Product specifications are subject to change without notice. See below for product specifications.

3-1 General Specifications

Item	Description		
Print Method	•Non-impact Electro-photography		
Transfer system	•Conductive roller transfer		
Developing	• Non-Magnetic, Mono-Component Toner, Ozoneless		
Fuser Unit(Toner fix)	• Pressure and Heating with Lamp		
Print Speed	• 20ppm : A4 size , 5% Character pattern		
Resolution	• Addressable 1200 X1200 dpi		
Source of Light	• Laser diode (LSU : Laser Scanner Unit)		
Warm-Up Time	• Power-on boot : 70 seconds or less		
First Print Time	• 12 seconds or less		
Feed Method	• Cassette & Manual , Option Feeder		
Print Margin		A4	Letter
	Top	4mm	0.20"
	Bottom	4mm	0.25"
	Left & Right	4mm	0.25"
Print Width	Min: 75mm Max: 213		
Print Length	Min: 148mm Max: 356		
Dimension(W X D X H)	• 427 X 442 X 301(without option cassette feeder)		
Weight	• Net : 16.5 Kg(Max.) • Gross : 18.5 Kg (Max.)		
Acoustic Noise	•Stand by : Less than 30 dB •Printing : Less than 50 dB •Sleep mode : Background Noise		
Certification & Compliance	•110V : UL, CSA,FDA,FCC Part15 •220V : TUV,CE		
Power save mode	•Enable		
Toner save mode	•Enable		

3-2 Controller Specification

Item	Description
Processor(CPU)	•Motorola Power PC 603e 100Mhz
Memory	<ul style="list-style-type: none"> •ROM : 2MB flash •RAM : 16MB •Option SIMM module :8,16,32,64MB (standard EDO RAM) •EEPROM :512byte
Emulation	<ul style="list-style-type: none"> •PCL6: win 3.1/95/98/200 , win NT 4.0 •Postscript Lever3: win 95/98 PPD , win NT4.0 PPD , Mac PPD •PCL5e: Linux
Interface	<ul style="list-style-type: none"> •Parallel :IEEE1284 •Serial : RS232C •Local Talk •IrDA(Infra-Red Adaptor connector) • Network Interface : 100 Base T(Auto select),Ethernet
Interface switching	•Automatic
Interface time-out	•5min(Max.)
Font	<ul style="list-style-type: none"> •45 Scalable Font , 1 Bitmap Font •Postscript 3 internal font 136
Compatibility	•Dos, Win 3.1 / 9.5/9.8/2000,WinNT4.0,Linux,iMac

3-3 Electrical Specification

Item	Description			Remark
Input Voltage		Low-voltage mode	High-voltage mode	
	Nominal input voltage	100-120 VAC	200-240 VAC	
	Input voltage range	90-132 VAC	189-264 VAC	
	Nominal frequency	50/60 MHz	50/60 MHz	
	Frequency tolerance	±3Hz	±3Hz	
Power Consumption	<ul style="list-style-type: none"> •340W Avg or less •Sleep mode : 30W Avg or less 			

3-4 Environmental Condition

Item	Operating	Storage
Temperature	• 10~30 (50-86)	• 0~40 (32-104)
Humidity	• 20~80%RH	• 10~80%RH

3-5 Image Cartridge (Developer)

Item	Description	Remark
Life span	• Running : 10,000 sheets	5% pattern A4 page
Developing	• Non-magnetic Contact Developing	
Charging	• Conductive Roller Charging	
Toner supply Method	• Exchange the Developer	
Toner checking sensor	• Enable	
Ozone	• 0.1PPM or less	8hours
Style	• Single cartridge	

3-6 Paper Handling Specifications

•Input Paper Size

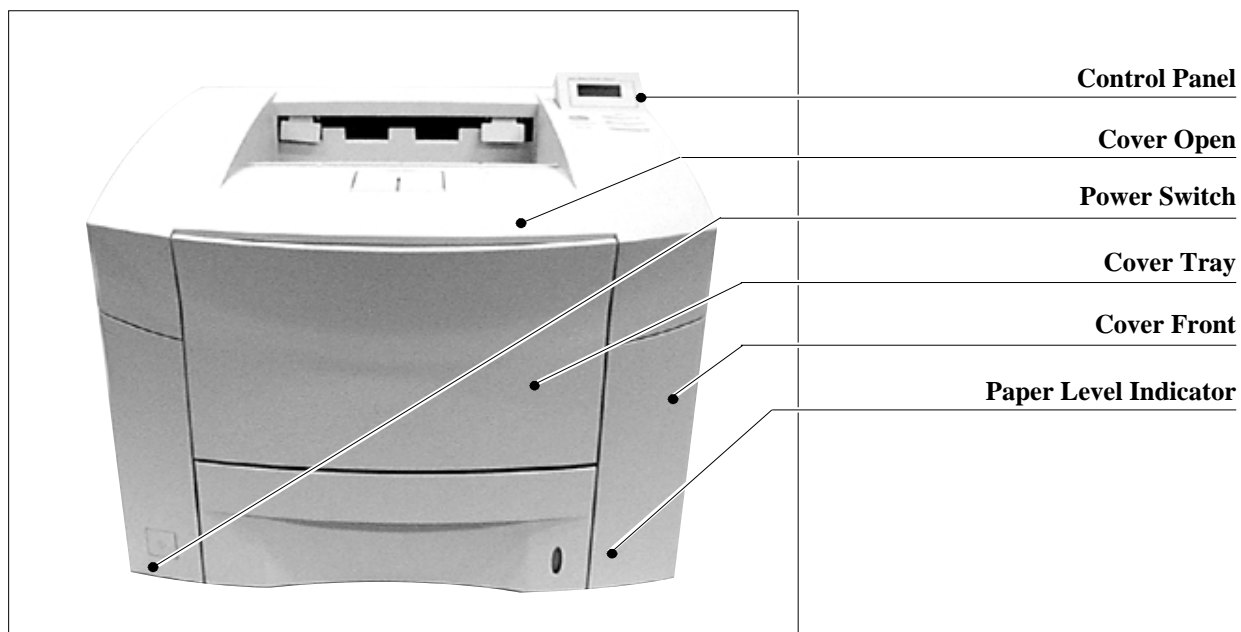
Paper Type	Size	1st Cassette	2nd Cassette	MP tray	Duplex
A4	210 X 297 mm	O	O	O	O
Letter	216 X 279(8.5 X 11")	O	O	O	O
Folio(Legal13")	216 X 330(8.5 X 13")	O	O	O	O
Legal(Legal14")	216 X 356(8.5 X 14")	O	O	O	O
Executive	184 X 267((7.25 X 10.5")	O	O	O	
Statement	140 X 216(5.5 x 8.5")			O	
ISO B5	176 X 250	O	O	O	
JIS B5	182 X 257	O	O	O	
A5	148.5 X 210		O	O	
A6	105 X 148.5		O	O	
Com-10 Envelope	105 X 241(4.15 X 9.5")		O	O	
Monarch Envelope	98 X 191(3.87 X 7.5")		O	O	
DL Envelope	110 X 220(4.33 X 8.66")		O	O	
C5 Envelope	162 X 229(6.38 X 9.01")		O	O	
C6 Envelope	114 X 162(4.49 X 6.38")			O	
Transparency(OHP)	A4 or Letter			O	
Label paper	A4 or Letter			O	

•Feed capacity

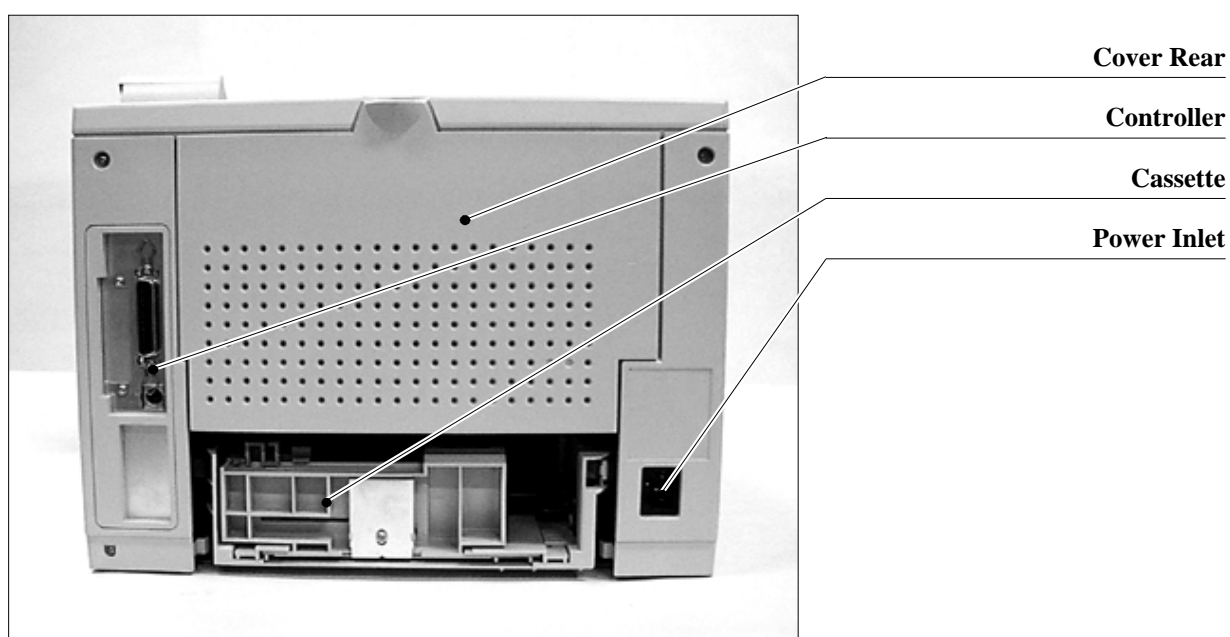
Item	Description	
Cassette	500sheets	
MP tray	Paper	100 sheets
	Transparencies	30 sheets
	Envelopes	10 sheets
	Card stocks	10 sheets
	Labels	25 sheets
Option Cassette	500sheets	

4. Disassembly

4-1 Front View

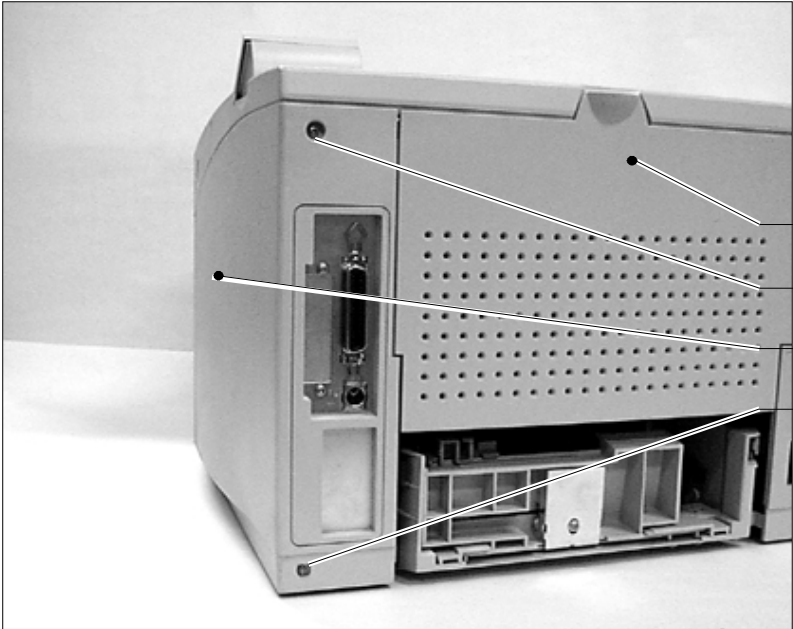


4-2 Rear View



4-3 Cabinet Disassembly

4-3-1. Cover Right



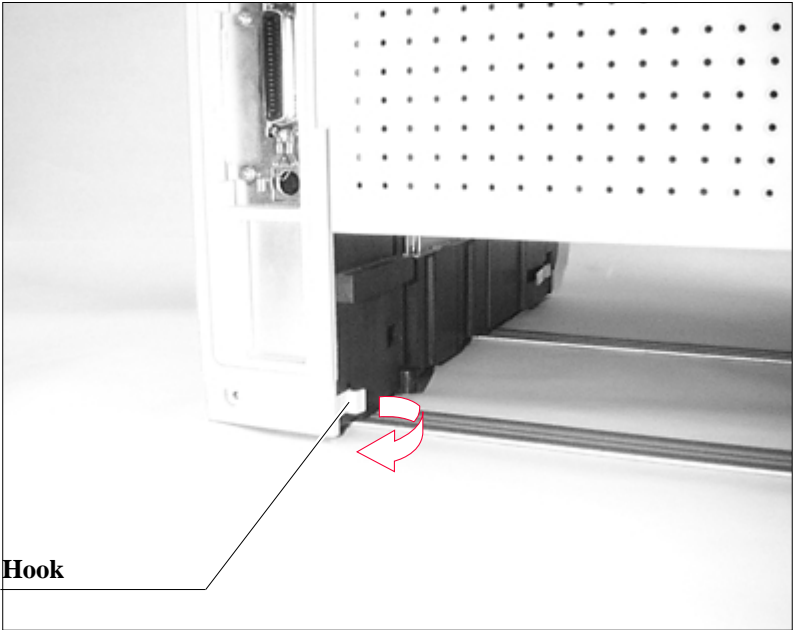
Remove the screws and open the Cover Rear.

Cover Rear

Screw

Cover Right

Screw



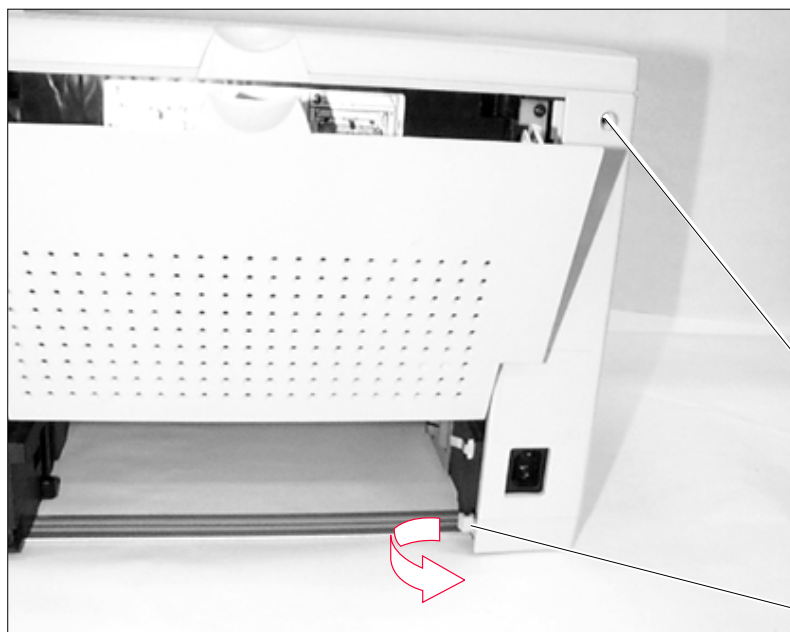
In order to remove the Cover Right. Please see the hook which locks the cabinet to the frame, right hand should first grab the hook and pull it out for releasing the hook from the frame.

Hook



The left hand should slide the Cover Right to the backward.

4-3-2. Cover Left

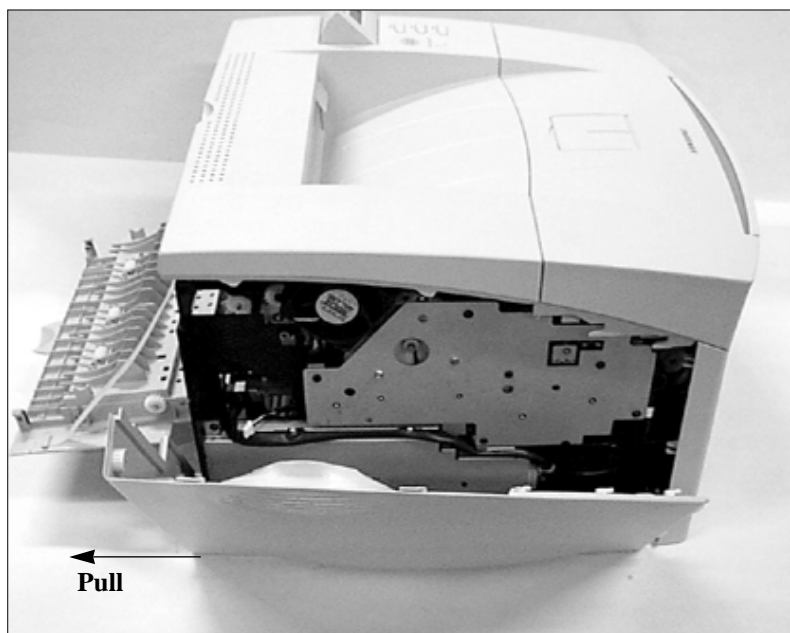


Remove screw and open the Cover Rear.

Please see the hook of the Cover Left. Pull the Hook and release it from the frame.

Screw

Hook



Slide the Cover Left to the backward with pulling the hook out.

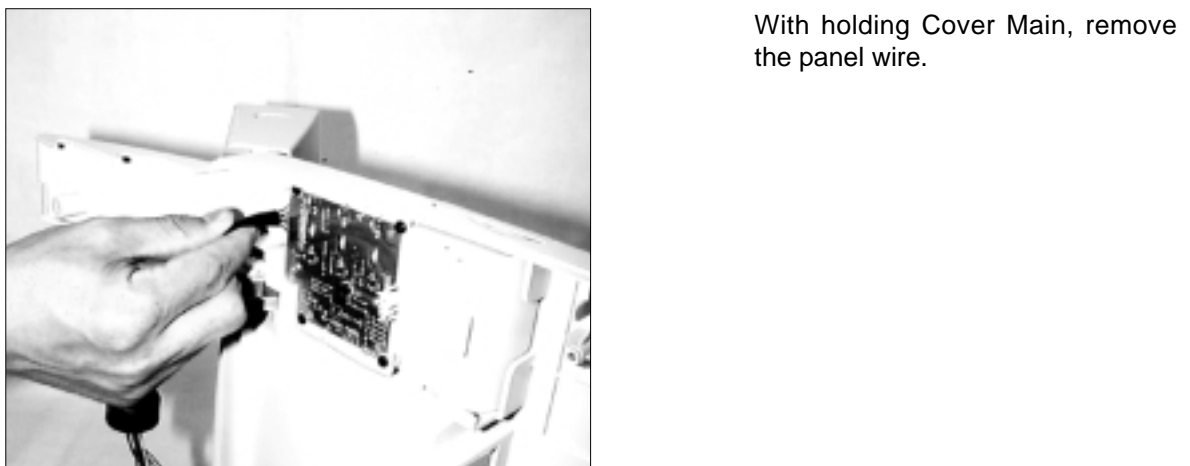
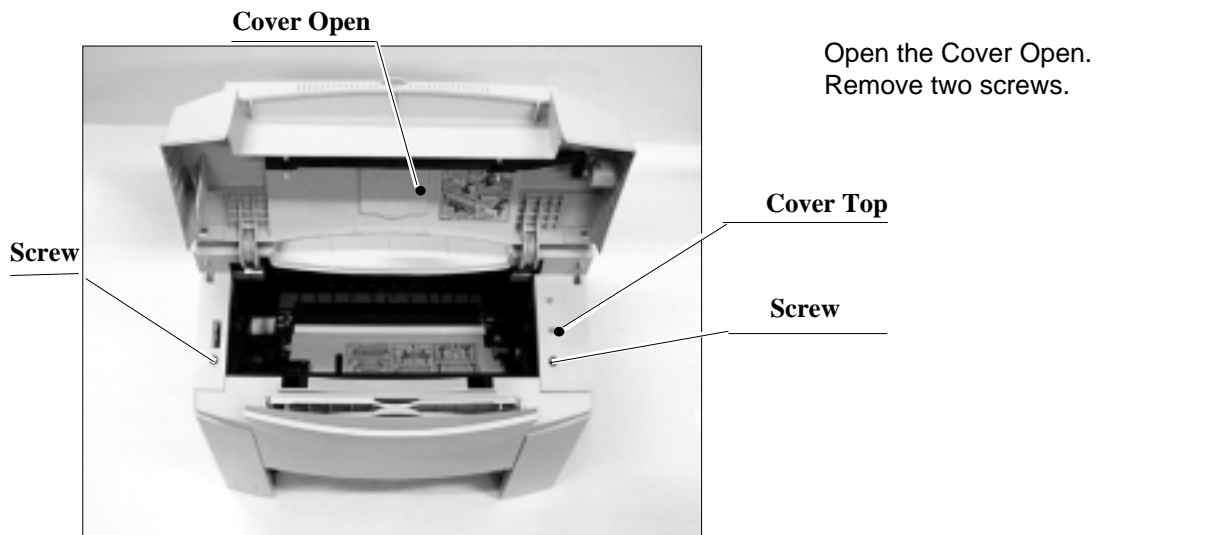
The Cover Left can be easily removed.

Pull

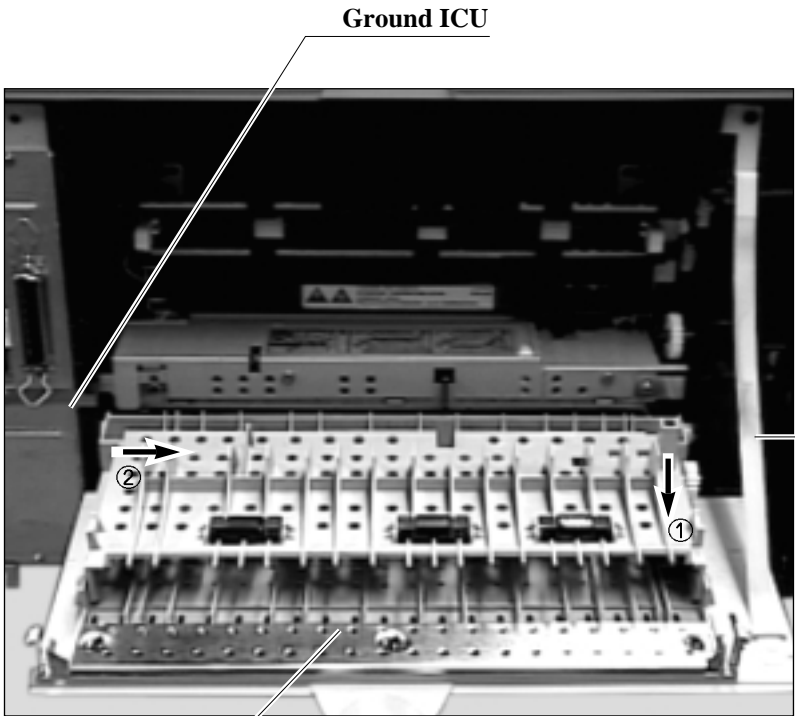
4-3-3. Cover Front

Please see the MP tray disassembly. (4-9)

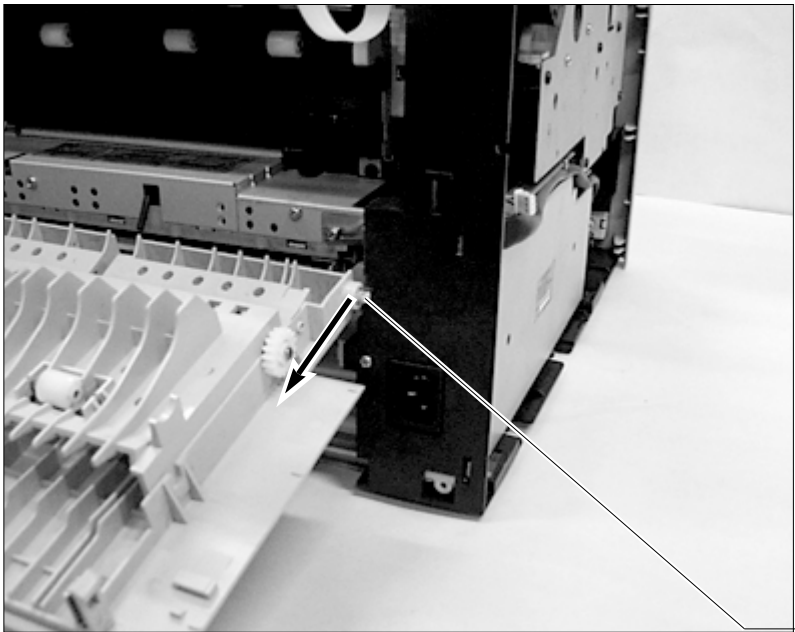
4-3-4. Cover Main



4-3-5. Cover Rear

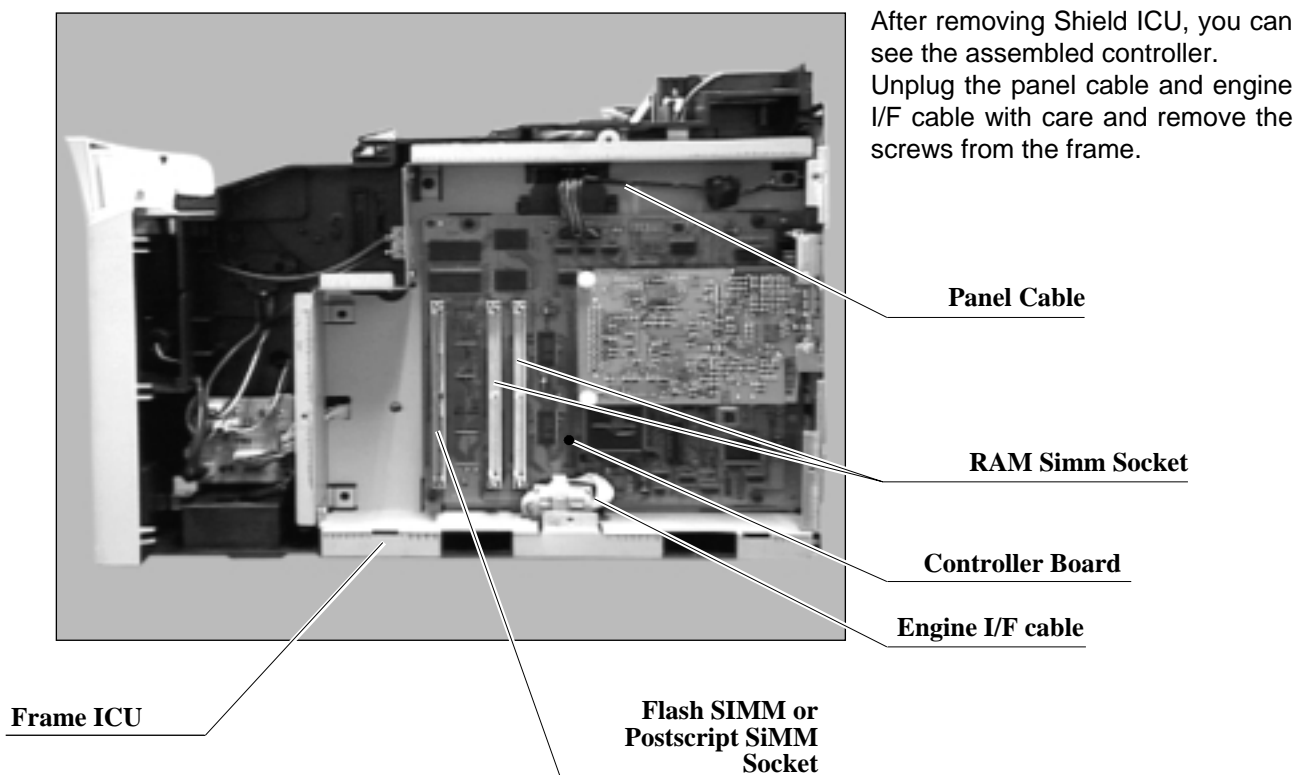
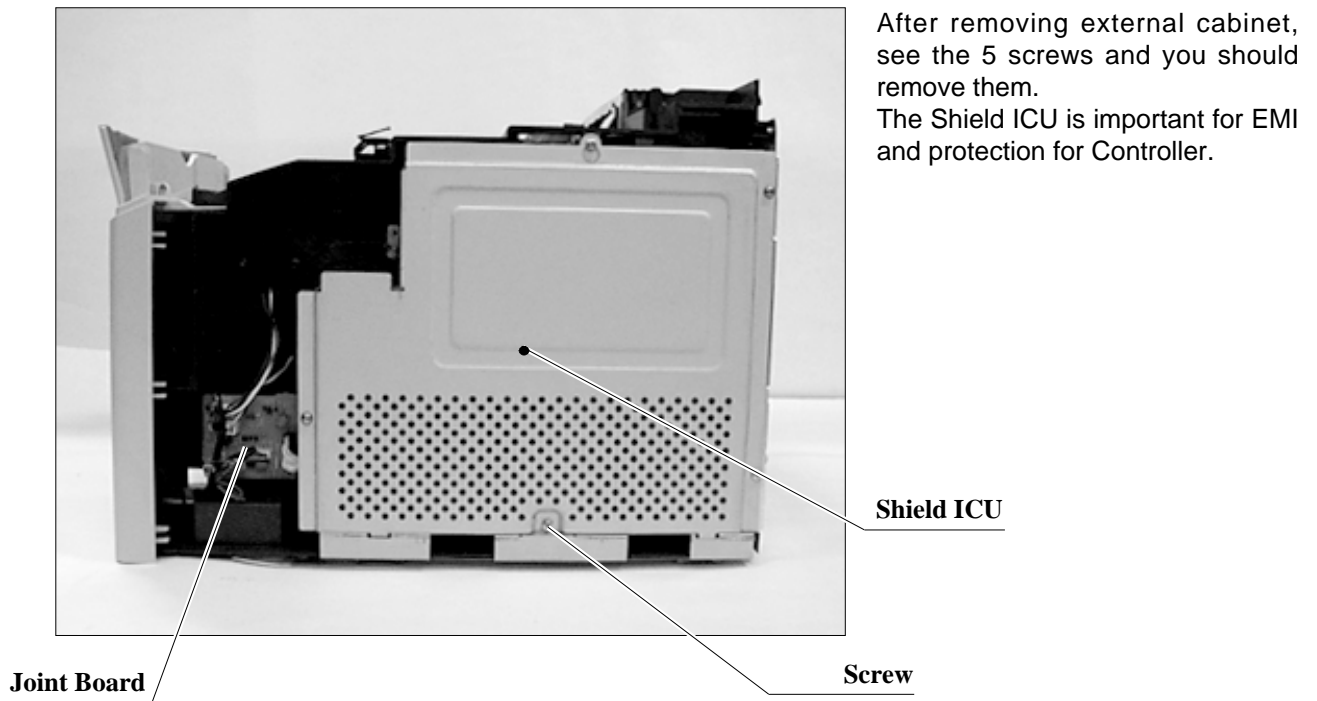


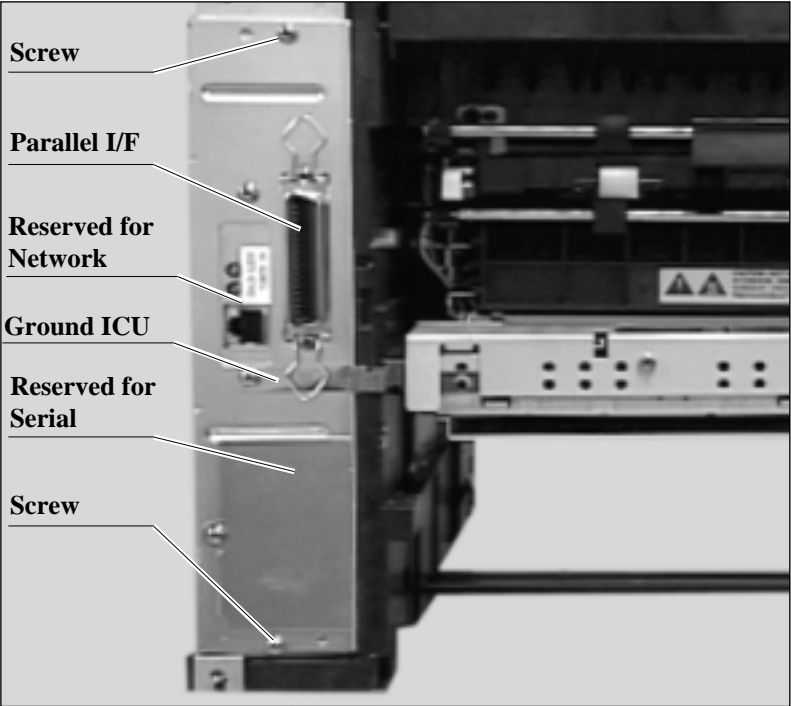
Open the Cover Rear.
Detach the stripe by pushing the stripe.
There is a hook holding the stripe.



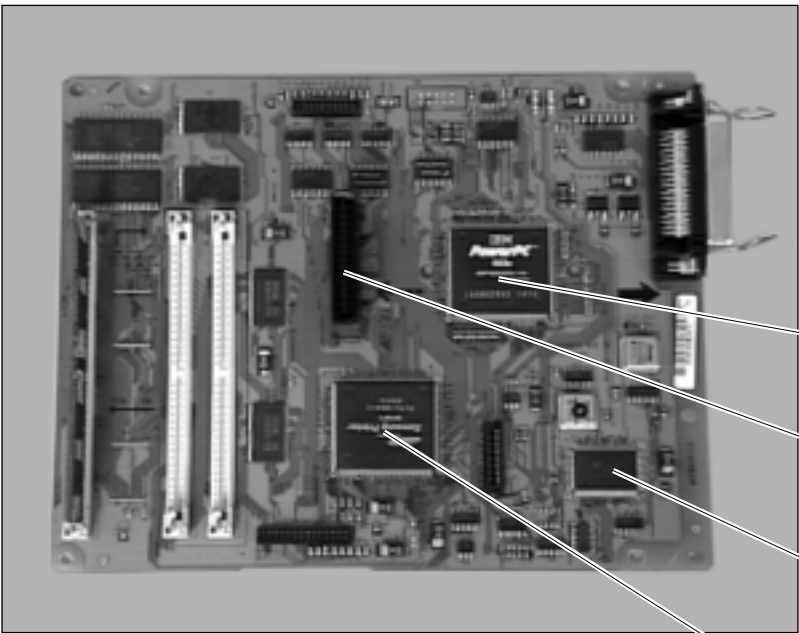
After detaching the stripe from the Cover Rear,
Release the Cover Rear from the hinge.

4-4 Video Controller board & Joint board



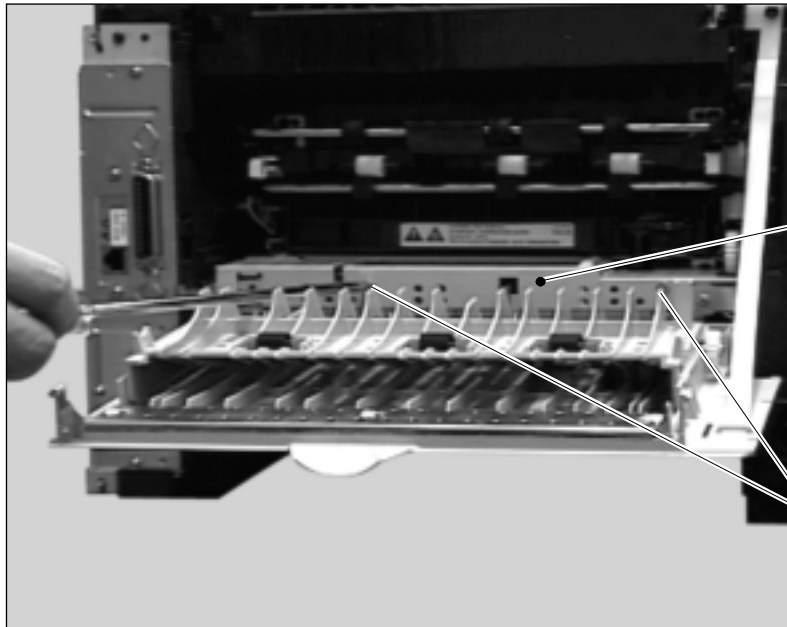


Remove the screws which hold the Bracket ICU to the frame and detach controller from the frame. You can see the Frame ICU.



Video Controller Board

4-5 Fuser Ass'y



Open the Cover Rear and see the screws and unscrew and remove the Cover pcb.

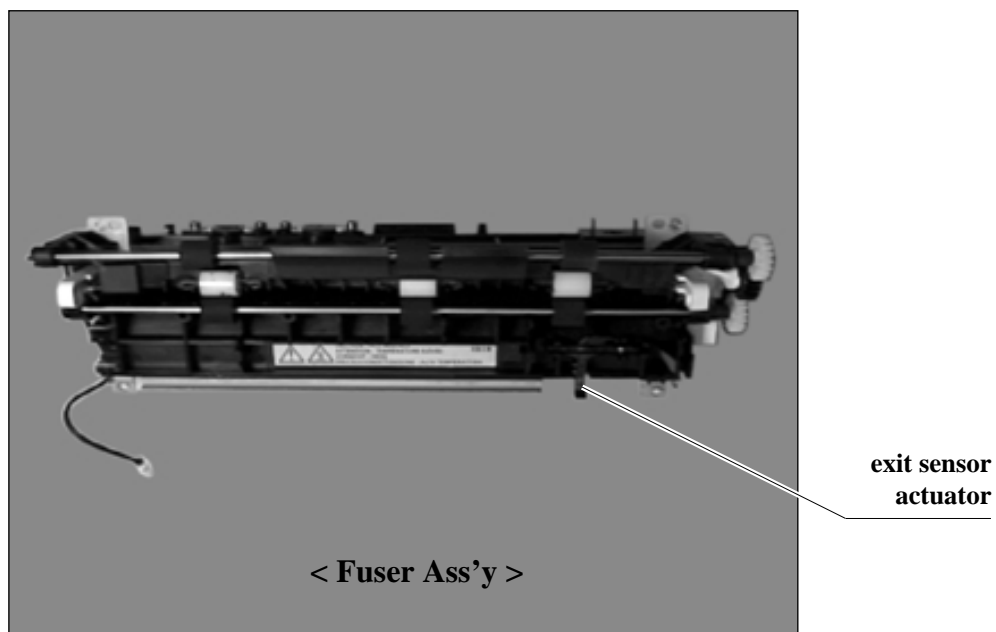
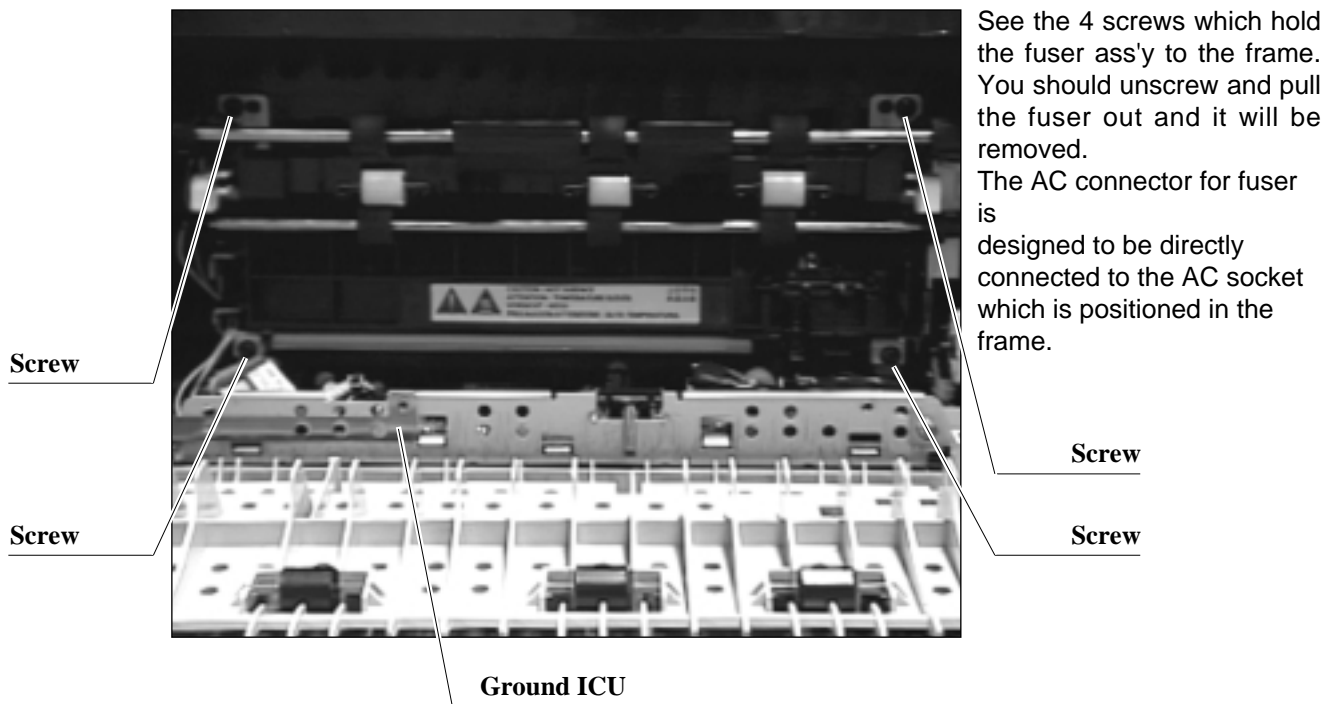
**Cover PCB
for engine B'd**

Screw

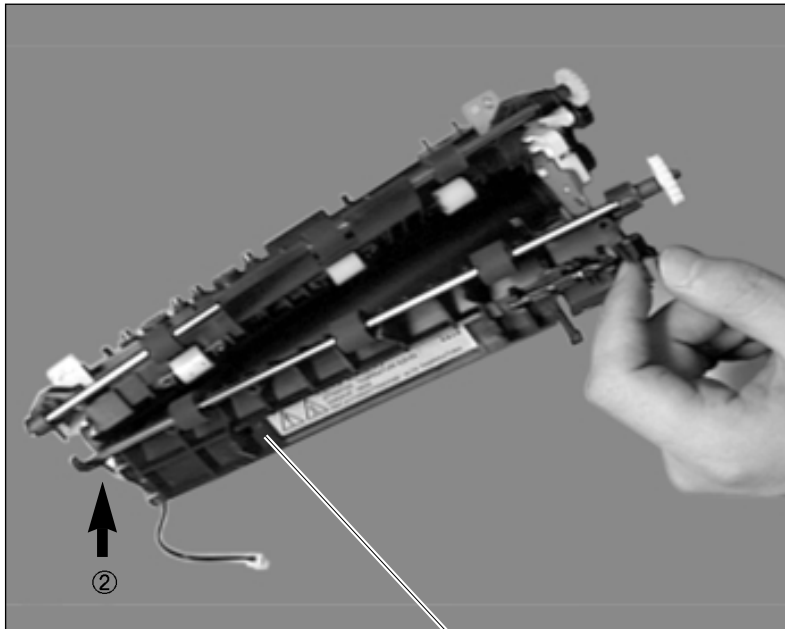


After removing the Cover pcb, unplug the Thermistor connector from the Engine Board.

**Thermistor
connector**



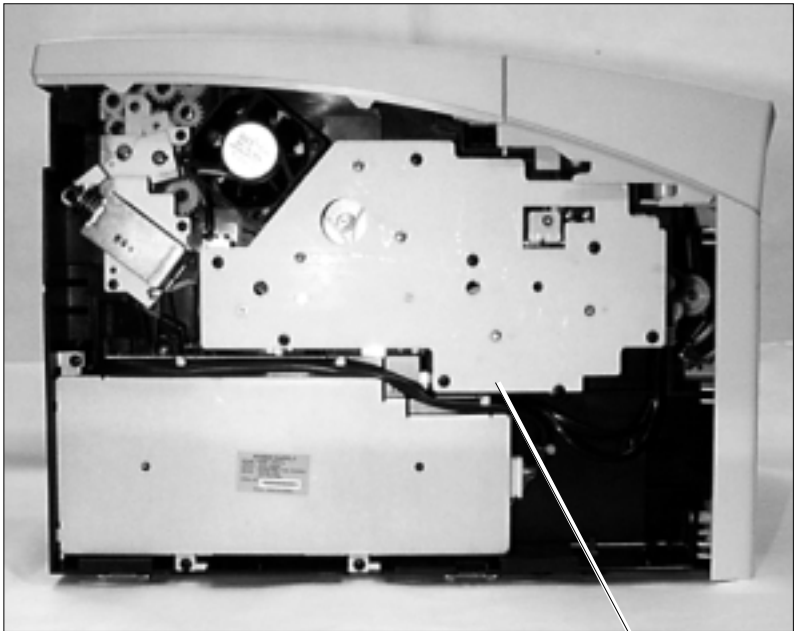
Notice : After you confirm exactly SEC. code, you have to exchange the defective "Fuser ass'y" for goods
=> Do use the exclusive "Fuser ass'y" in the ML-7300 model (ML-7300 model is different from ML-7000 & ML-7050)



When Jam happens, you can easily remove it by pulling the Guide Rear out like figure. In order to remove Guide Rear, opening the Guide Rear out like figure and pull out hinge of Guide Rear.

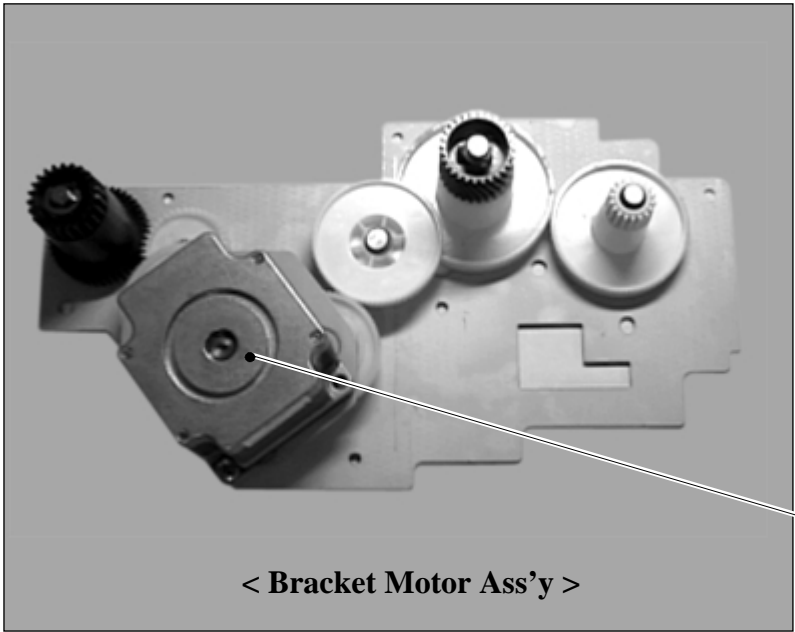
Guide Rear

4-6 Bracket Motor Ass'y & Cover Open Switch Unit



Bracket Motor ass'y is located in the right-upper side. Remove 7 black screws and detach the ass'y from the frame and unplug the motor connector from the motor.

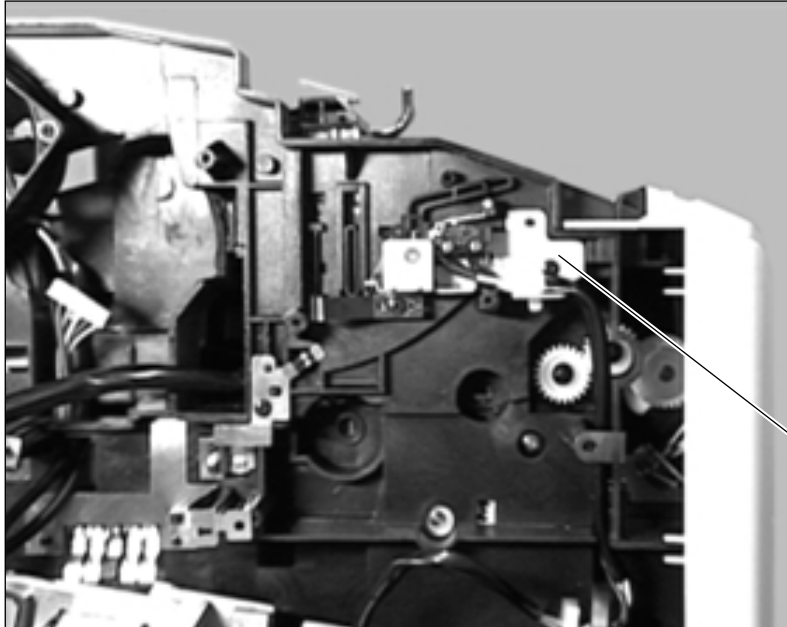
Bracket Motor Ass'y



You can see the Bracket Motor ass'y. Motor and several gears are assembled in one gear bracket.

Motor

< Bracket Motor Ass'y >



After removing the Bracket Motor ass'y, you can see the Cover Open Switch Unit.

Remove the SMPS.

Refer to SMPS & Bracket

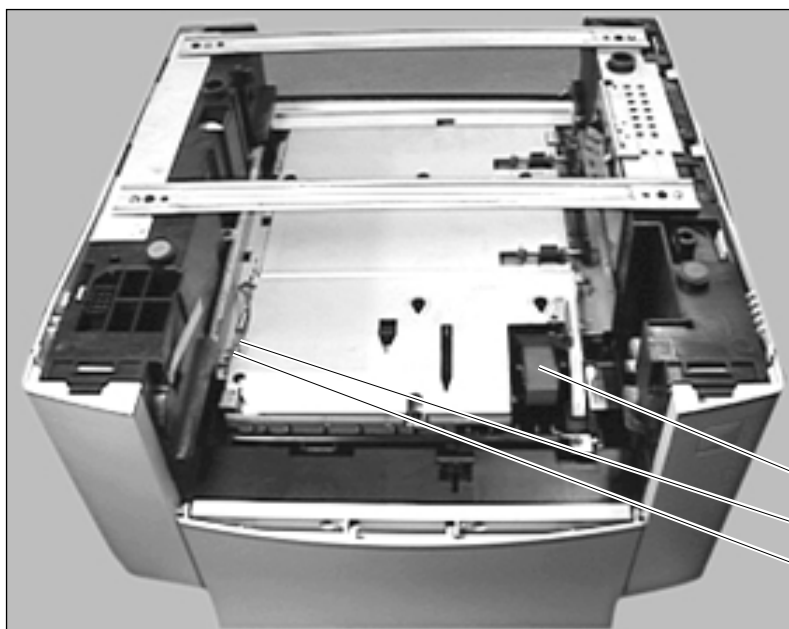
Duplex Ass'y disassembly (4-12)

Detach two Connectors form the SMPS.

Remove 2 screws and detach the unit from the frame.

Cover Open Switch unit

4-7 Pickup Ass'y

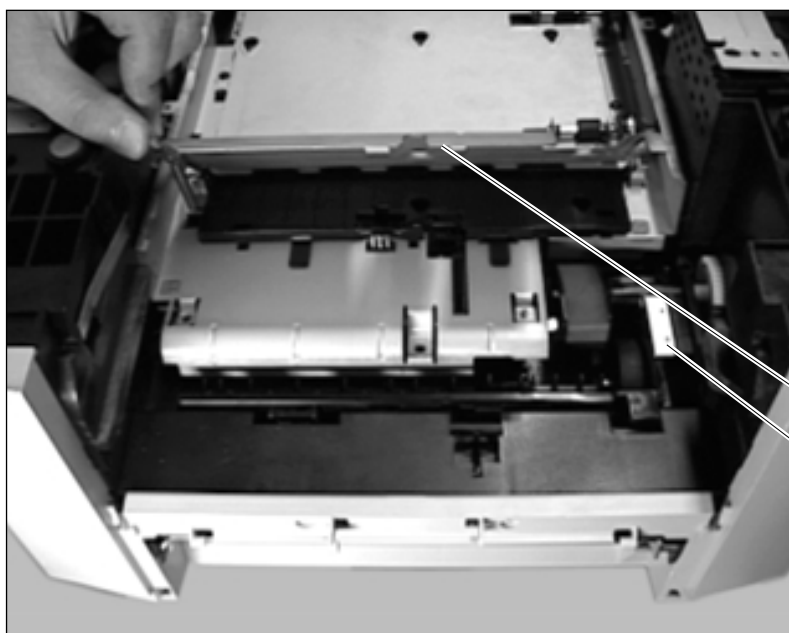


After running about more than 100,000 pages, the pickup ass'y may be needed to be replaced depending on feeding quality. Remove the screw of Bracket Support and tension spring.

Pickup Ass'y

Tension Spring

Screw



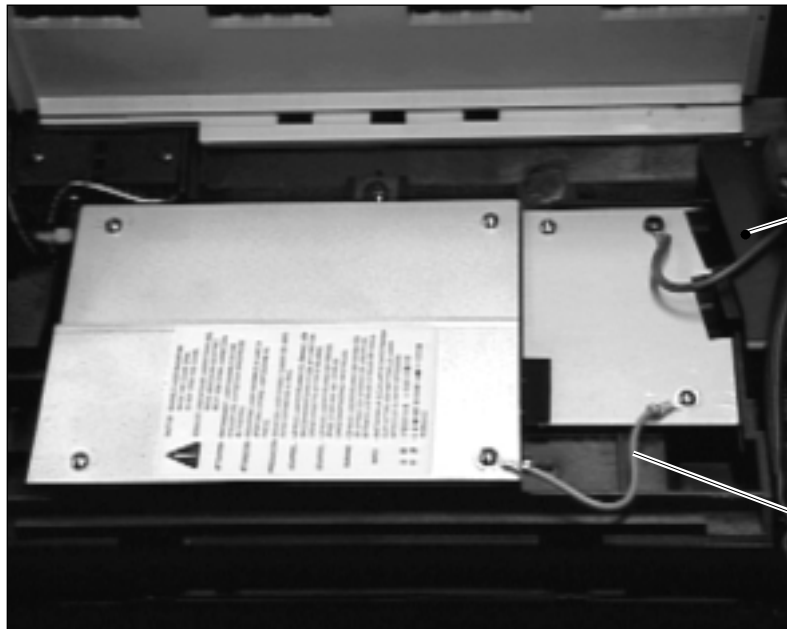
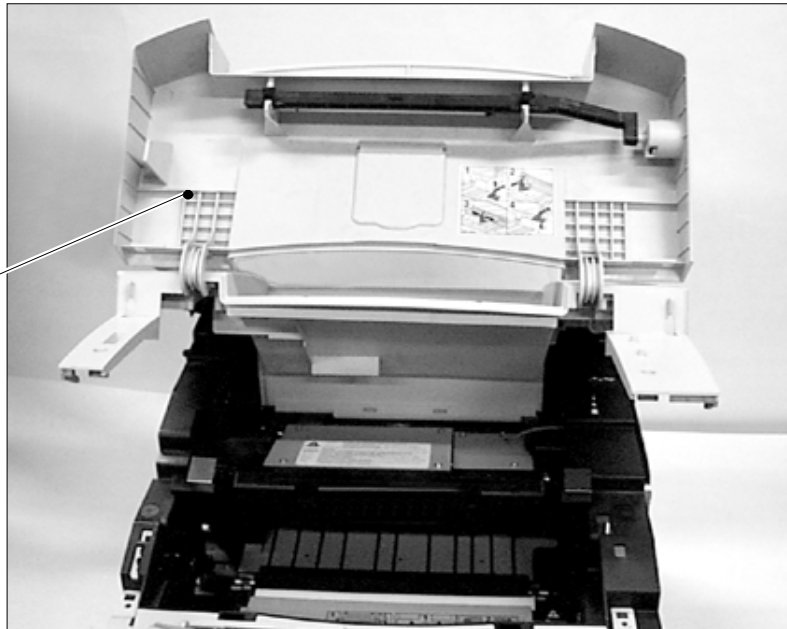
Lift Guide Front Duplex and remove the 3 mounting screws of Pickup Ass'y.

Guide Front Duplex

Screws

4-8 Laser Scanner Unit

Cover Top



Cap-wire LSU

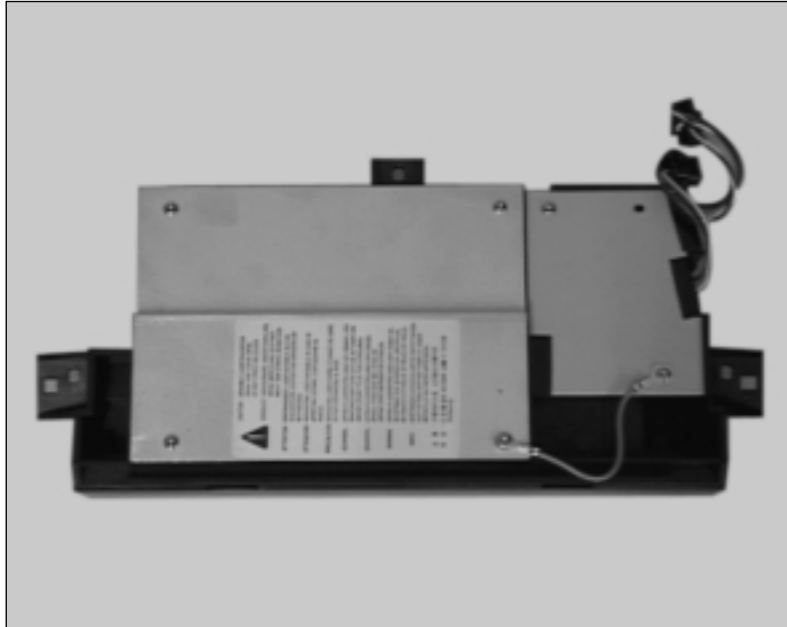
Ground Wire

Laser Scanner Unit is located in the upper frame.

In order for LSU disassembling, disassemble the Cover Main, you should take off the left and right cover.

There is wiring protection cover(Cap Wire LSU)for LSU wires.

Remove Cap wire LSU.



There are two wires for LSU. One is LSU motor and the other is Laser beam control. The wires are wire to wire types. You can easily disconnect the wires. After disconnection, unscrew and remove LSU.

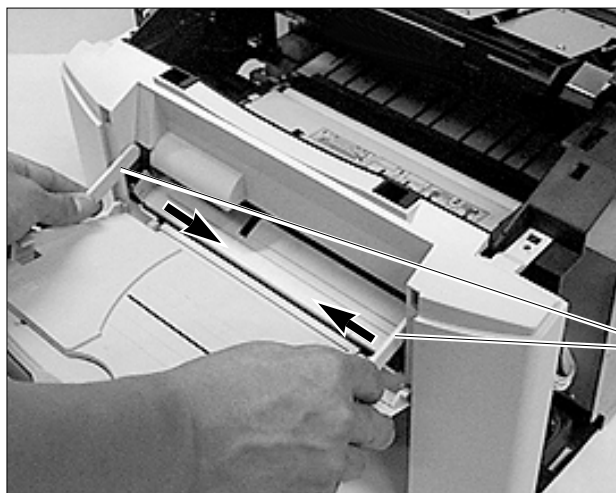
Notice : *When you exchange the defective “LSU unit” for good, you have to remove the slim film on the LSU lens.*

=> *If not , no image is occurred , because laser beam does not transmit the slim film.*

4-9 Multi Purpose Tray

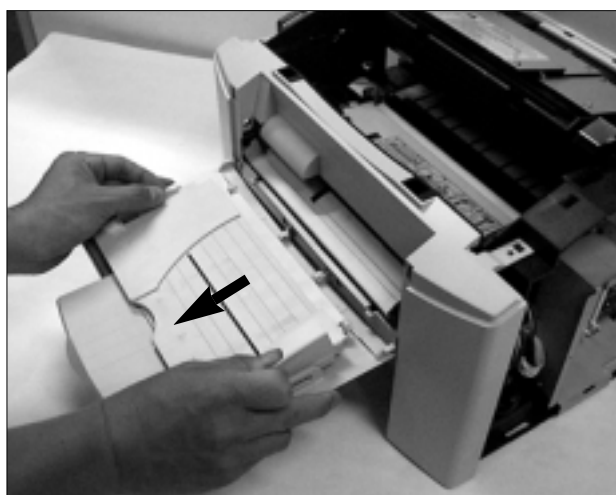


Remove the Cover main.

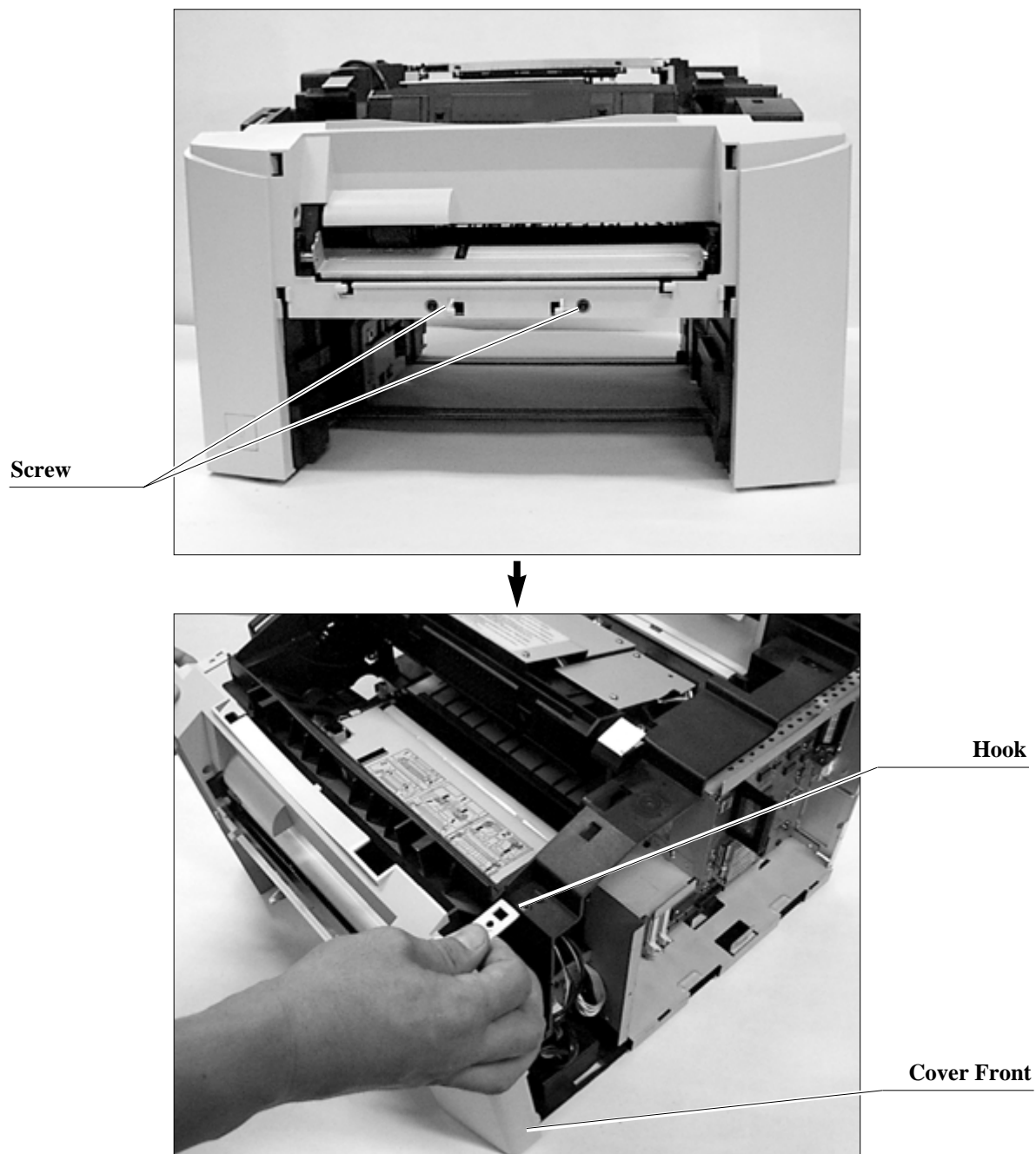


Hook

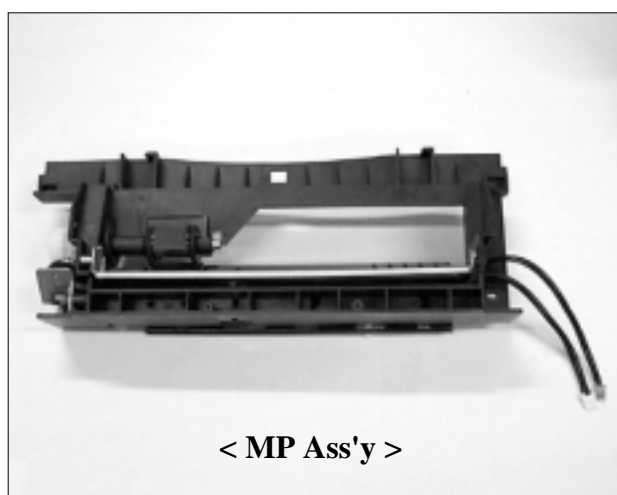
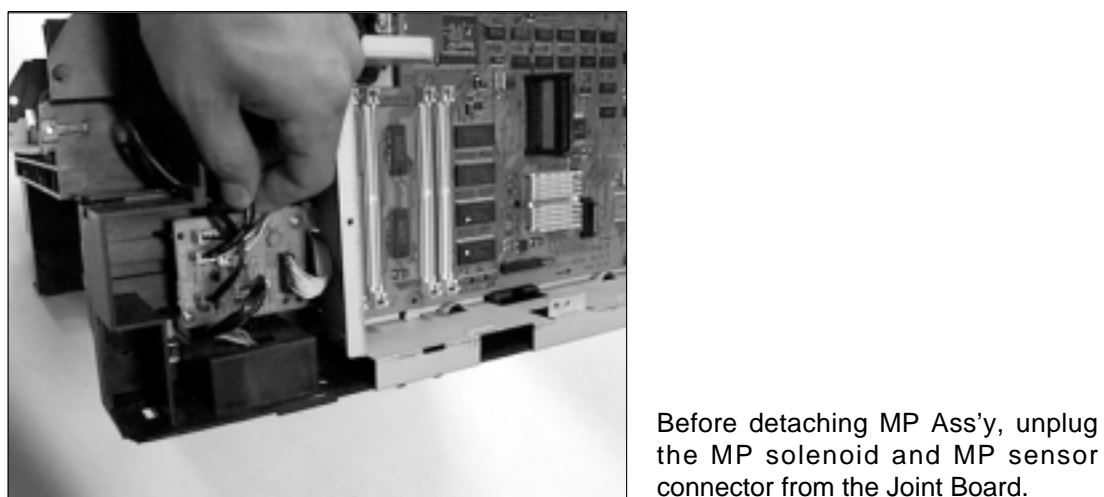
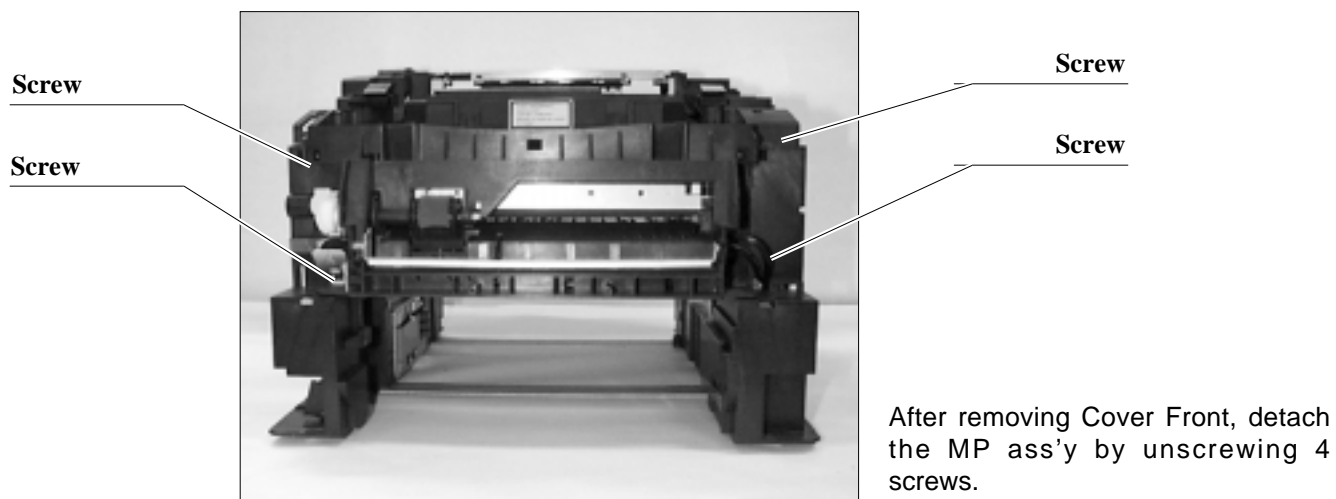
See the Links which hold the MP tray in the both side.
Hold the Links and pull it to the arrow direction.



Hold the MP tray and pull it to the arrow direction.



After detaching the Tray MP, see the screws and remove them.
Remove the hook and release the Cover Front by releasing the hook.



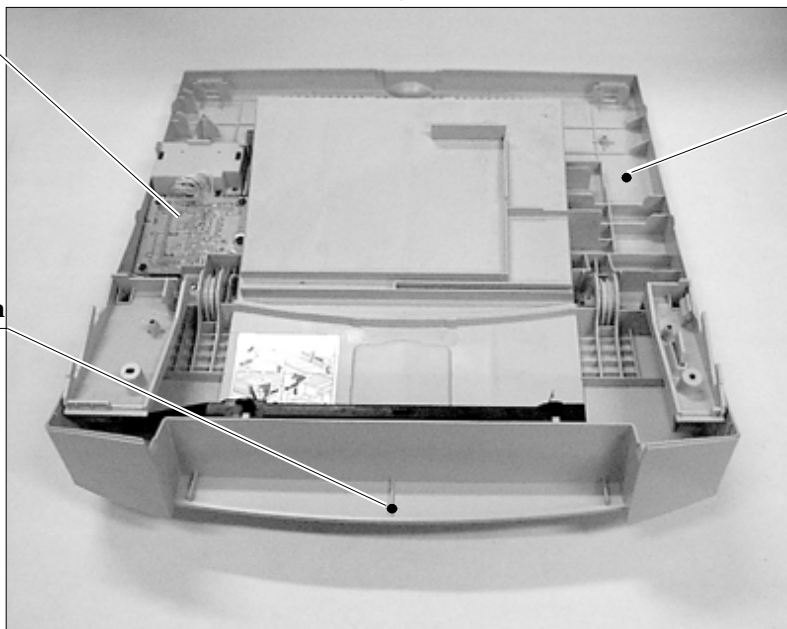
4-10 Control Panel



LCD Ass'y

Cover Top

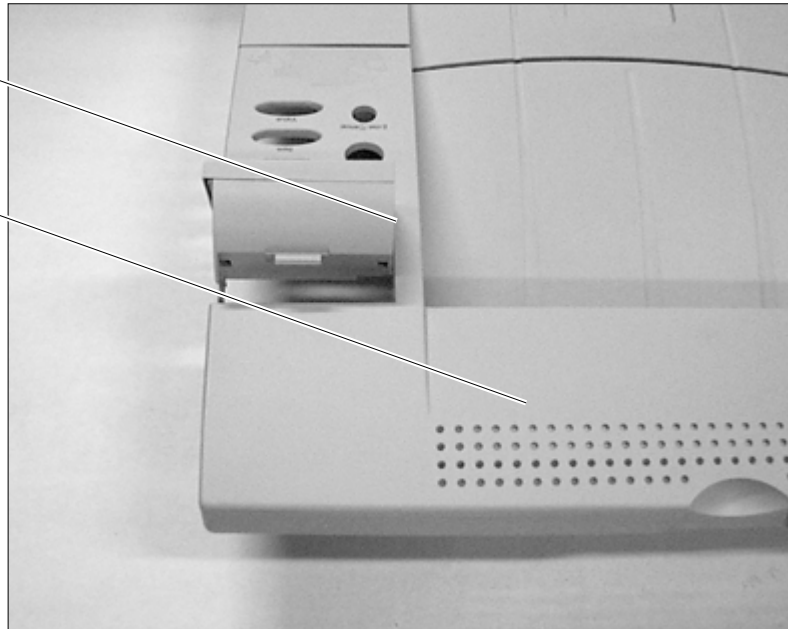
Cover Open



First lift up Cover Main and see the panel wire and disconnect the wire from the panel board. And next step is to remove the panel board which is located in the Cover Top. Control panel consists of LCD ass'y and Key&LED ass'y. Remove Key&LED ass'y and remove LCD ass'y.

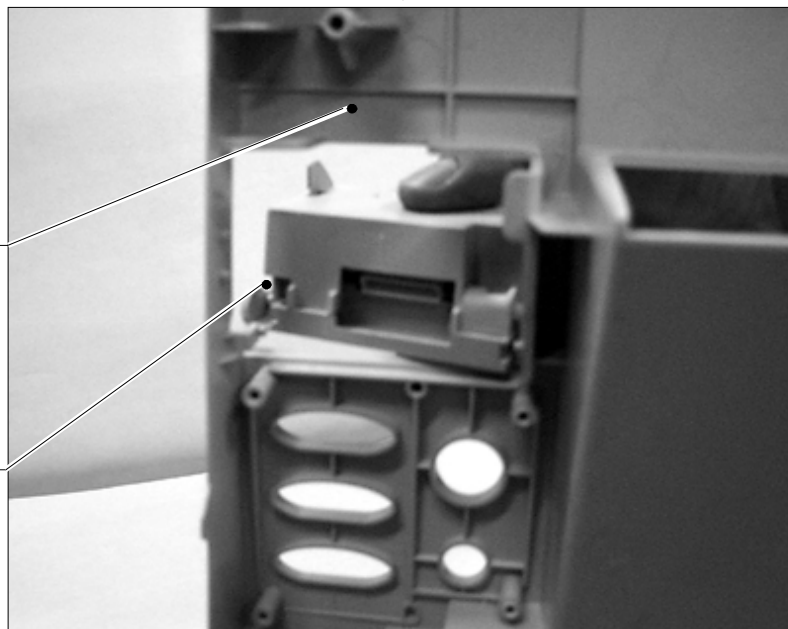
LCD Ass'y

Hook



Cover Top

Hinge



After removing Key&LED ass'y, release the hook of LCD ass'y from Cover Top and see the hinge for LCD ass'y in the cabinet and release them.
You should spread the hinge of LCD ass'y.
But be careful not to damage the hinge.

4-11 Engine Controller Board

Paper

In order for disassembling PCU, the printer should be turned upside down. When turned over, toner may contaminate LSU window. Open the Cover Top and you should insert one paper into the inner like above figure.



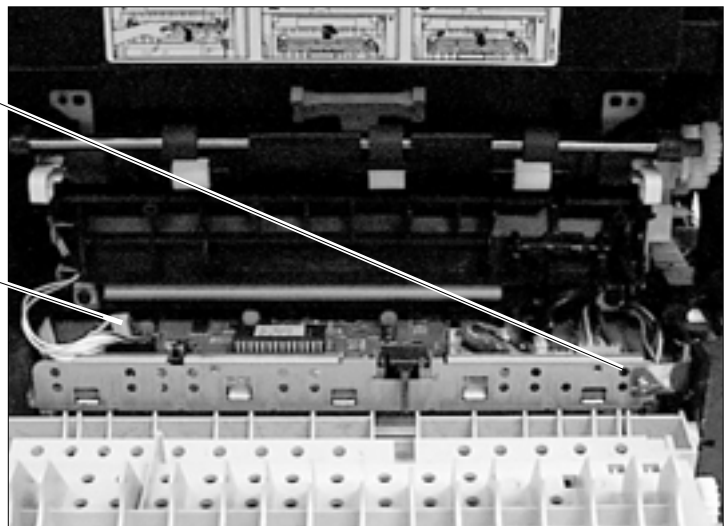
Open the Cover Rear and remove the Cover PCB.

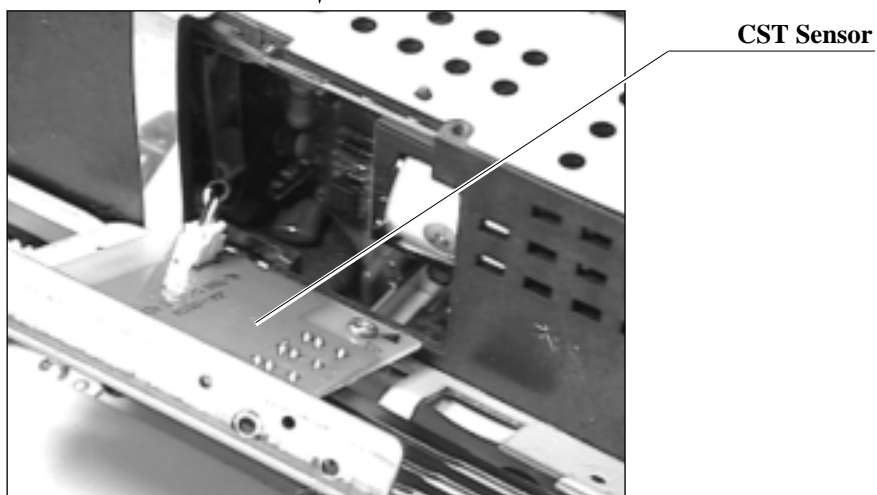
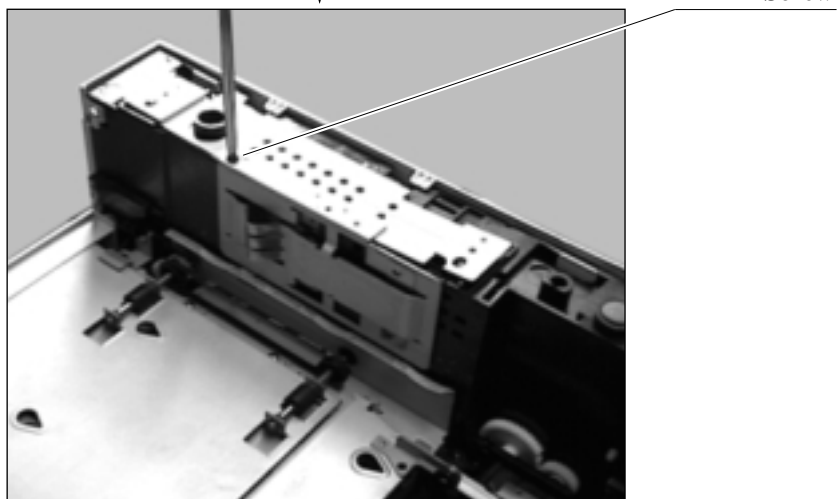
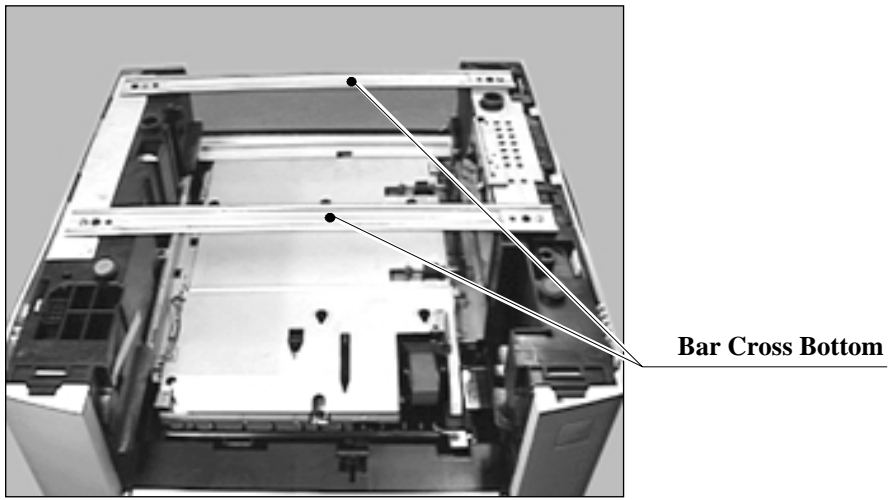


Screw

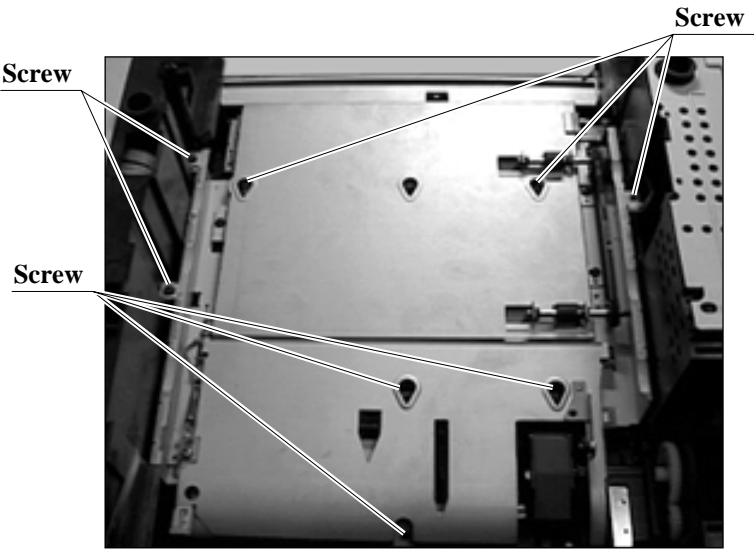
wires

After removing Cover Rear, disconnect all wires from the PCU. and then remove the screw of Ground Shield SMPS, Turn over the printer.

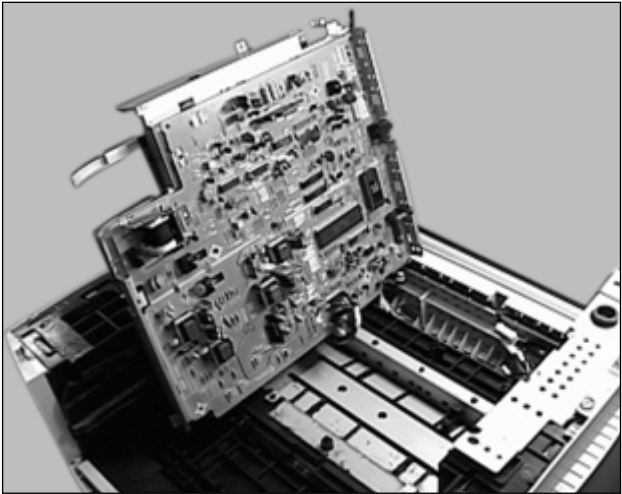


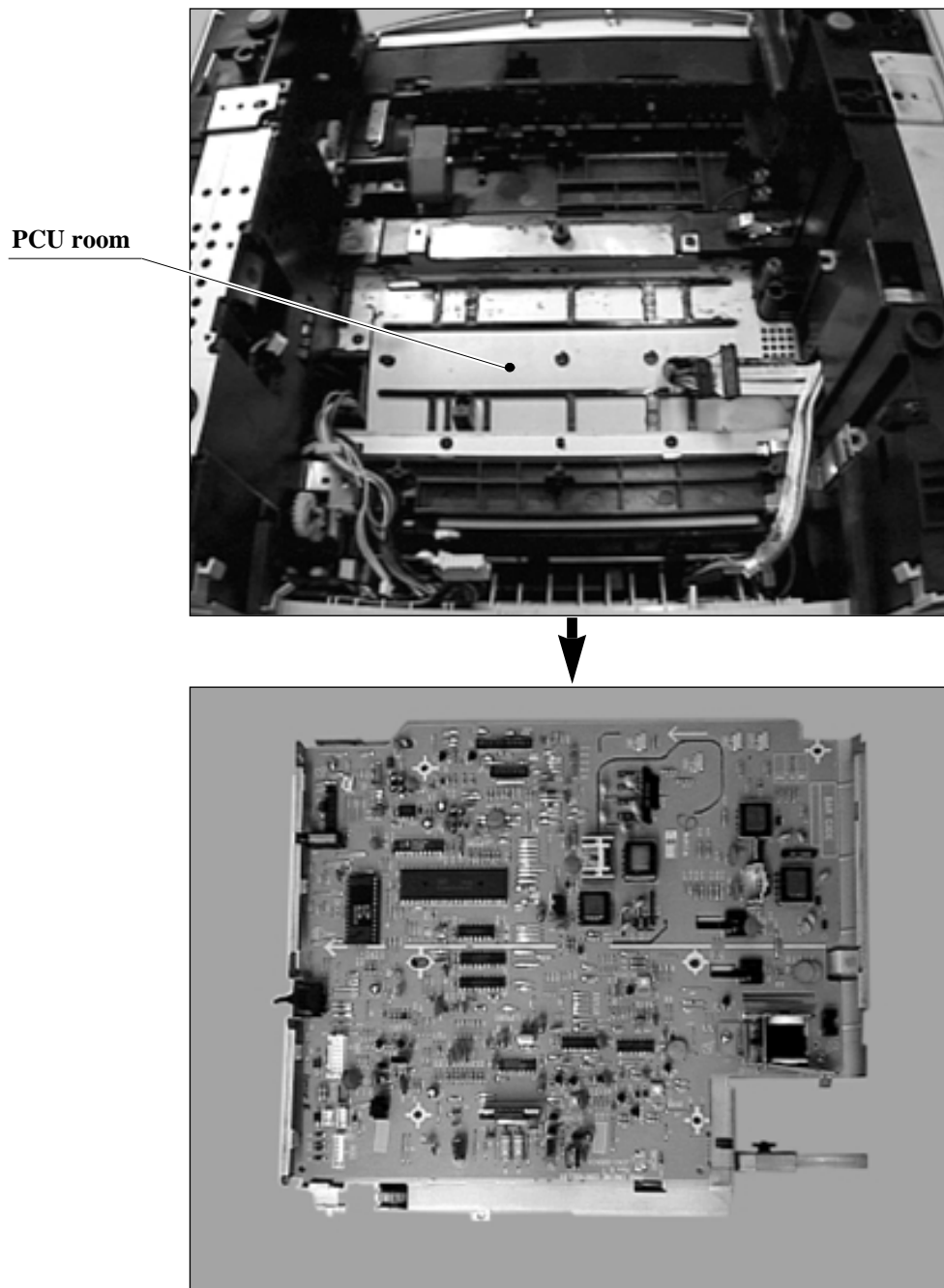


After turning over, remove Bar cross Bottom by unscrewing them 8 screws.
Next remove the CST Sensor and remove the screws in the PCU which are black colored screws.



After unscrewing, lift the PCU like above figure. And you can see the connector which are LSU's and 'Video I/F's'. Unplug them with care. Be careful not to be hurt to your hands when you disconnect the wires because the connection is tight and you may pull the connectors strongly.

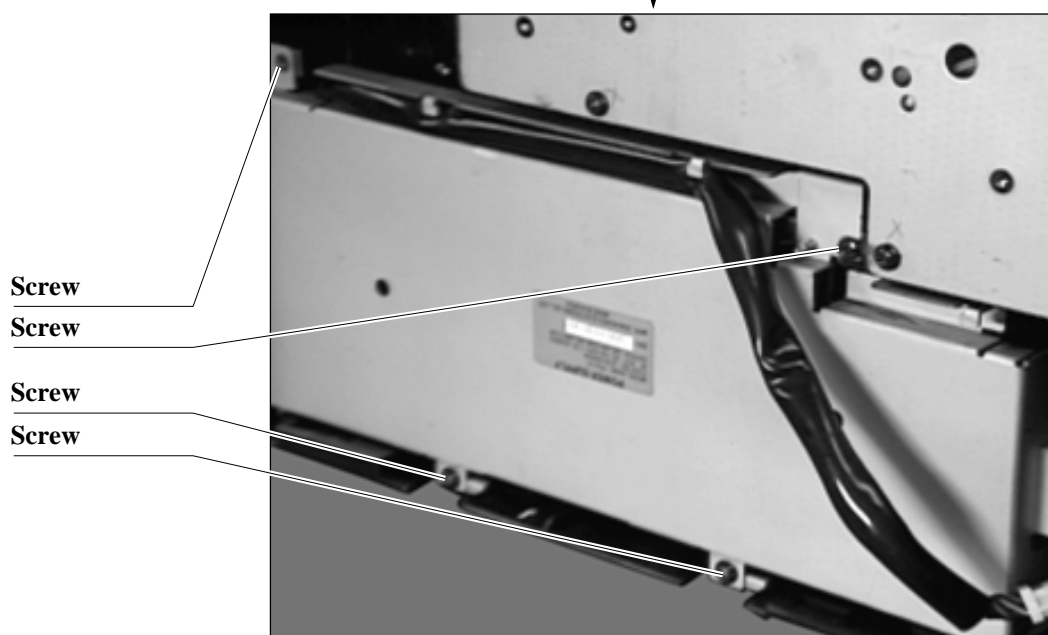




< PCU Ass'y >

Above is to show the disassembled PCU and Frame. PCU Ass'y has some sensor, some actuator, solenoid and Shield plate and HVPS circuit. Service man could ask the Ass'y or repair parts.

4-12 SMPS & Bracket Duplex Ass'y

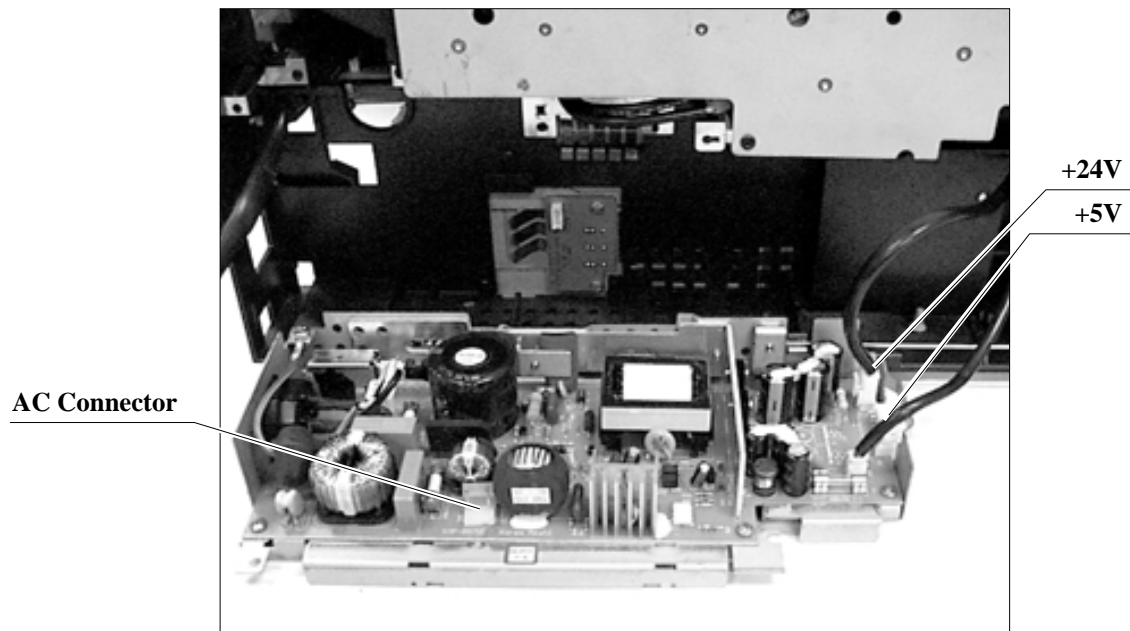


In order to remove SMPS, first remove Cover Left.

Use your left hand to release hook from the frame and slide the Cover Left to backward by use of right hand. After removing Cover Left, you can see the SMPS. Unplug the power connector and release the wire from the wire guide of the SMPS.

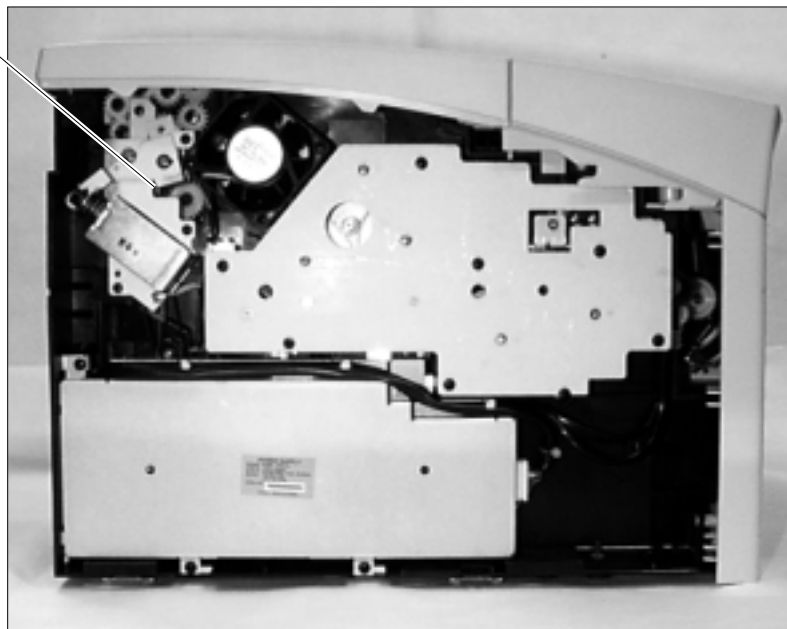
Remove four screws and separate SMPS from the frame.

You can see the fuser AC connector and +5V, +24V connector which are connected to the microswitches. Detach the wires from the SMPS.



There are 4 connectors to the SMPS. The power connector is +5V and +24V output from SMPS. AC for fuser is AC output from SMPS to the fuser. And there are microswitches which are attached to the upper frame and which are shorted when Top cover is closed, namely interlock Switches for +24V for HVPS, motor and for +5V for Laser beam.

Bracket Duplex Ass'y



The Bracket Duplex Ass'y is located in the left upper side. Remove the screws and detach the ass'y from the Frame.

In order to remove the connector of Solenoid, first remove Engine Controller Board.
Refer to Engine Controller Board disassembly (4-11)

4-13 Transfer Roller Ass'y



Holder Transfer Roller

Open the Cover Top, you can see colored levers at each side of Transfer Roller, push the levers which is attached in the Holder transfer Roller to release the Ass'y.

5. Troubleshooting

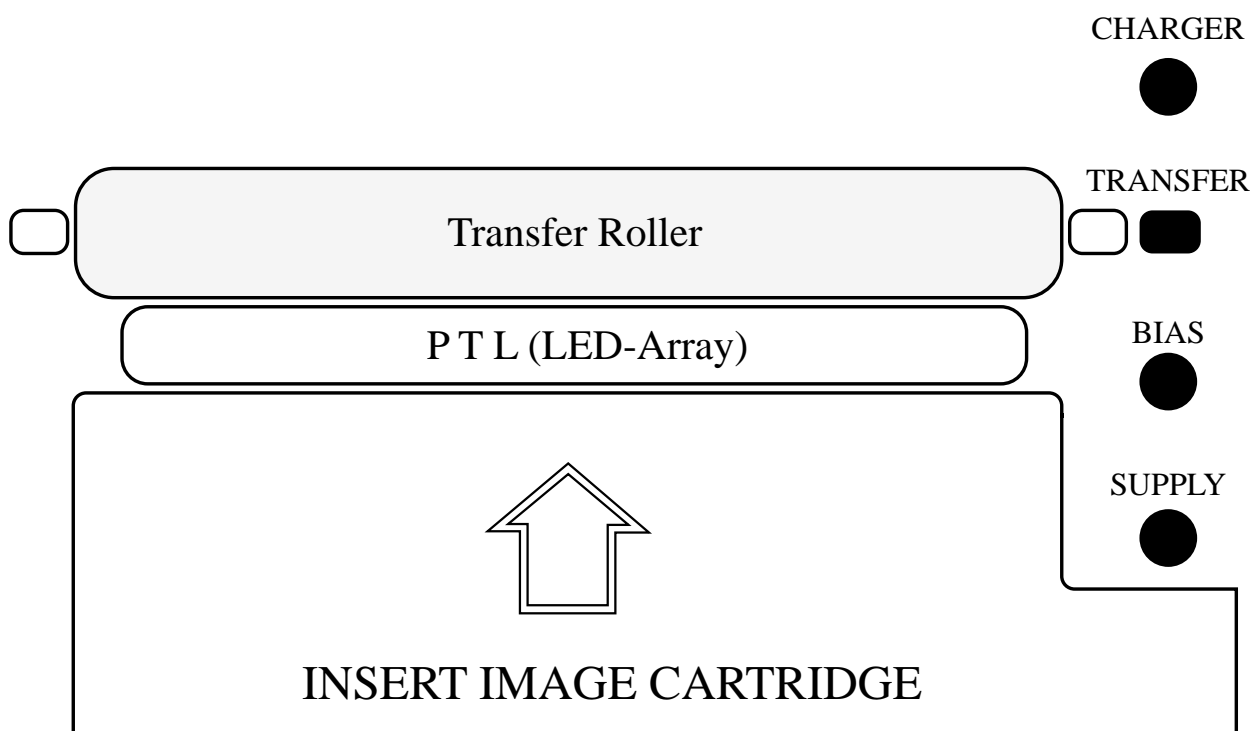
5-1 Print Quality

Error status	Check	Solution
Dark Image	<ol style="list-style-type: none"> 1. Check HVPS output voltage 2. Check terminal contact for HVPS. 	<ol style="list-style-type: none"> 1. Refer to HVPS output spec <ul style="list-style-type: none"> - Replace the engine board - Refer to “4 - 11” 2. Fix the terminal to contact well.
Light Image	<ol style="list-style-type: none"> 1. Check the toner quantity. 2. Check HVPS output voltage 3. Check the terminal contact for HVPS. 	<ol style="list-style-type: none"> 1. Replace image cartridge. 2. Refer to HVPS output spec. <ul style="list-style-type: none"> - Replace the engine board. 3. Fix the terminal to contact well.
Horizontal Density Band.	<ol style="list-style-type: none"> 1. Compare new image cartridge with present one 2. Contamination of Transfer Roller 	<ol style="list-style-type: none"> 1. Replace image cartridge 2. Replace transfer roller
Print Contamination	<ol style="list-style-type: none"> 1. Contamination of Fuser Unit 2. Contamination of Heat roller 3. Contamination of OPC Drum 	<ol style="list-style-type: none"> 1. Clean Fuser Unit or change If not improved, replace it. 2. Clean Heat Roller <ul style="list-style-type: none"> - Refer to “4-5” 3. Clean OPC Drum. If not improved, replace image cartridge.
Toner on Backside of printer page	<ol style="list-style-type: none"> 1. Contamination of Fuser Unit 2. Contamination of transfer Roller 3. Contamination of paper path 	<ol style="list-style-type: none"> 1. Clean Fuser Unit. If not improved, replace it. <ul style="list-style-type: none"> - Refer to “4-5” 2. Replace Transfer Roller 3. Remove the contamination on paper path.
Back Ground	<ol style="list-style-type: none"> 1. Check HVPS output voltage 2. OPC Drum contamination or image cartridge life 3. Check the contamination of PTL lens 4. Check the terminal contact for HVPS. 5. Check the contamination of transfer roller. 	<ol style="list-style-type: none"> 1. Refer to HVPS output spec <ul style="list-style-type: none"> - Replace the engine board 2. Replace the image cartridge 3. Clean the lens with a soft dry cloth 4. Fix the terminal to contact well. 5. Replace Transfer Roller
Vertical Black Streak and band	<ol style="list-style-type: none"> 1. OPC Drum scar 2. OPC Drum damage 	<ol style="list-style-type: none"> 1. Clean OPC Drum 2. Replace image cartridge
Vertical White Streak	<ol style="list-style-type: none"> 1. Contamination of LSU window 	<ol style="list-style-type: none"> 1. Clean LSU window 2. If not improved, replace image cartridge
Partial Black Image (periodic)	<ol style="list-style-type: none"> 1. OPC Drum scar or particle 2. Heat roller scar or particle 3. Develop roller scar or particle 4. Charge roller scar or particle 	<ol style="list-style-type: none"> 1. Clean OPC Drum & roller 2. Clean heat roller 3. Clean the develop roller. If not improved, replace image cartridge. 4. Clean the charge roller. If not improved, replace image cartridge.
Partial White Image (not periodic)	<ol style="list-style-type: none"> 1. OPC Drum scar or particle 2. Check the cartridge life 	<ol style="list-style-type: none"> 1. Clean OPC Drum 2. Replace image cartridge

Error status	Check	Solution
No image (all white)	<ol style="list-style-type: none"> 1. Check HVPS voltage 2. Check the GND OPC contact. <ul style="list-style-type: none"> - Contact among GND OPC contact points. - Image cartridge. - GND OPC terminal on frame - GND OPC terminal on the engine board - Confirm the voltage between GND-OPC and GND-Frame. : -130V approx 3. Check LSU operation. <ul style="list-style-type: none"> - Refer to DCU control "05" 4. Compare new video board with present one. 5. Toner empty 	<ol style="list-style-type: none"> 1. Refer to HVPS output spec. <ul style="list-style-type: none"> - Replace the engine board 2. Fix contact points to fit well. 3. Replace the LSU. <ul style="list-style-type: none"> -Refer to "4-8" 4. Replace the video board. 5. Replace the image cartridge.
All Black Image	<ol style="list-style-type: none"> 1. Check the charger voltage 2. Check the terminal contact 3. Compare new video board with present one 	<ol style="list-style-type: none"> 1. Refer to HVPS output spec <ul style="list-style-type: none"> - Replace the engine board 2. Replace terminal 3. Replace video board

5-2 HVPS Output Spec

DCU	CODE NO.	HVPS OUTPUT	REMARK
CHARGER	"01"	- 1.55 KV	1. Turn off the printer 2. Open the rear cover and disassemble the cover-shield. 3. Connect the DCU on engine board and close the rear cover. 4. Open the top cover. 5. Remove image Cartridge. 6. Push the Cover Open Switch 7. Select the Diagnostic mode and measure HVPS output. *Recommended Test Equipment - DVM -High Voltage Probe
TRANSFER "-"	"02"	-1KV~ -1.4KV	
TRANSFER "+"	"03"	+3.05 KV	
BIAS	"04"	- 475 V	
SUPPLY	"04"	- 675 V	
OPC GND	—	- 130 V	



5-3 Malfunction

Error status	Check	Solution
No Power	<ol style="list-style-type: none"> 1. Check FUSE <ul style="list-style-type: none"> - F1(8A), F2(5A) OPEN. 2. Check FUSE. <ul style="list-style-type: none"> - F3(250V/3A) OPEN. 	<ol style="list-style-type: none"> 1. Replace SMPS. <ul style="list-style-type: none"> - Refer to “4-12” 2. Measure the resistance +5V and GND. (Engine board CN5-pin6 and CN5-pin9). If find the short circuit, replace the Engine board.
Internal Error 11 (Fuser Error)	<ol style="list-style-type: none"> 1. Check Fuser unit <ul style="list-style-type: none"> - Thermostat open - hallogen lamp defect Normal : 110V version - 2~3Ω 220V version - 5~6Ω 2. Check thermistor wire assembly defect. <ul style="list-style-type: none"> Normal : 2~400kΩ 3. Check SMPS <ul style="list-style-type: none"> - CN2 conection on SMPS - Fuse(F2) open - Defect of component related to Fuser control. 4. Check Engine Board <ul style="list-style-type: none"> - CN7 connection - Fuser control line: Cn5-2 level (Lamp on : 0.2V, Lamp off:24V) 	<p>To disassemble the Fuser unit, refer to “4-5”.</p> <ol style="list-style-type: none"> 1. If the thermostat of the fuser unit is opened. replace it. 2. If the thermistor wire of the fuser unit is defected, replace it. 3. If the fuser unit is normal, replace SMPS. 4. If not normal operation after replacing it, replace the engine board.
Cover open	<p>Check the Cover Open operation</p> <ol style="list-style-type: none"> 1. Cover open unit defect 2. Cable damage and connection 3. Engine board defect 	<ol style="list-style-type: none"> 1. Replace cover open Unit <ul style="list-style-type: none"> -Refer to “4-6” 2. Replace cover open switch assembly, and connect properly. 3. Replace the engine board.

Error status	Check	Solution
Jam 2 “Paper is stopped just after exit sensor”	<ol style="list-style-type: none"> 1. Check the exit sensor. - Refer to DCU mode “08” 2. Check the exit sensor actuator. 3. Check the Exit Roller. 4. Check the Cover Rear. 5. Check the Contamination of Fuser Unit 	<ol style="list-style-type: none"> 1. Replace Exit sensor. - Refer to “4-11” 2. Replace Exit sensor actuator. - Refer to “4-5, 6-6” 3. Replace Exit Roller. - Refer to “4-3, 6-1” 4. Replace Cover Rear. - Refer to “6-1” 5. Replace or Clean Fuser Unit - Refer to “4-5, 6-6”
Duplex Jam 1	<ol style="list-style-type: none"> 1. Check the operation of Duplex Clutch - Refer to DCU mode “12” 2. Check the Duplex sensor 1. - Refer to DCU mode “07” 3. Check the Duplex sensor 1 actuator. 4. Check the Cover Rear. 5. Check the bracket duplex unit 6. Check the duplex solenoid. The resistance of duplex solenoid: 40~50 ohm. 	<ol style="list-style-type: none"> 1. Replace Duplex Clutch. - Refer to “4-6” 2. Replace the DS1 on Engine Board. 3. Replace Duplex sensor 1 actuator. - Refer to “4-11” 4. Replace Cover Rear. - Refer to “6-1” 5. Replace bracket duplex unit - Refer to “6-8” 6. Replace duplex solenoid ass’y.
Duplex Jam 2	<ol style="list-style-type: none"> 1. Check the Duplex sensor 2. - Refer to DCU mode “07” 2. Check the Duplex sensor 2 actuator. 3. Check the Gear of shield pcb - Check all the gear for correct installation 	<ol style="list-style-type: none"> 1. Replace the DS2 on Engine board. 2. Replace Duplex sensor actuator. 3. Replace Gear of shield pcb - Refer to “4-11, 6-7”
PTL Error (Pre Transfer Lamp)	<ol style="list-style-type: none"> 1. Check the LED Array. 2. Check the cable connection or wire defect. 3. Check Joint board. 	<ol style="list-style-type: none"> 1. Replace LED Array. - Refer to “6-2” 2. Replace harness or reconnection. 3. Replace Joint board. - Refer to Disassembly
Toner Empty	<ol style="list-style-type: none"> 1. Check image cartridge life 2. Check Toner sensor contact. 3. Check Joint board 4. Compare new image with present on. 	<ol style="list-style-type: none"> 1. Replace image cartridge. 2. Replace harness or reconnection. 3. Replace Joint board. - Refer to “4-4” 4. Replace image cartridge.
OUT-BIN Full	<ol style="list-style-type: none"> 1. Check OUT-BIN sensor. - Refer to DCU mode “09” 2. Check OUT-BIN sensor actuator. 3. Check cable connection or wire defect 	<ol style="list-style-type: none"> 1. Replace OUT-BIN sensor. 2. Replace OUT-BIN sensor actuator. 3. Connect the cable correctly or replace the cable.
Internal Error 20 (Engine Error)	<ol style="list-style-type: none"> 1. Check the Cable between Engine and Video controller. (Engine board CN10 ➔ Video controller board J11.) 2. Engine board defect. 	<ol style="list-style-type: none"> 1. Connect the cable correctly or replace the cable. - Refer to “4-4” 2. Replace Engine board.

Error status	Check	Solution
Internal Error 10 (Scanner Error)	<ol style="list-style-type: none"> 1. Check the DC supply for laser scanning unit 2. Check laser scanning unit - Refer to DCU mode "05" 3. Check the cable connection and defect 4. Engine board. 	<ol style="list-style-type: none"> 1. If +5Vs for laser diode isn't supplied. check the cover switch assembly for +5Vs and fix it, 2. If the DC power supply for laser scanning unit has normal operation, replace the laser scanning unit 3. Replace cable and connect properly. 4. If not normal operation after replacing it, replace the engine board.
Jam 0 1. Paper is not exited from cassette 2. Paper is stopped before feed sensor.	1. 1st cassette feeding <ol style="list-style-type: none"> 1) Check the operation of Pick-up Clutch - Refer to DCU mode "06" 2) Check PAD of Pickup roller. 3) Check the Gear of Pickup Unit. 4) Check paper installation in cassette 	<ol style="list-style-type: none"> 1. Replace the Pick-up solenoid on Engine Board. - Refer to "4-11" 2. Replace PAD. - Refer to "4-7, 6-5" 3. Replace Pickup Unit Gear. - Refer to "4-7, 6-5" 4. Install paper properly.
	2. Multi purpose feeding <ol style="list-style-type: none"> 1) Check the operation of multi purpose Clutch - Refer to DCU mode "13" - Check MP solenoid. The resistance of MP solenoid 70~80Ω 2) Check PAD of Pickup roller 3) Check Joint board Measure the CN503-2pin 4) Check the Gear of multi Purpose Pickup Unit 5) Check cable connection or wire defect. 	<ol style="list-style-type: none"> 1. Replace MP solenoid. If not normal operation after replacing it, replace the engine board. - Refer to "4-11". 2. Replace PAD - Refer to "4-9, 6-4" 3. Replace Joint board. - Refer to "4-4" 4. Replace Pickup Unit Gear. 5. Connect the cable correctly or replace the cable.
	3. Second cassette feeding <ol style="list-style-type: none"> 1) Check Pickup Clutch for SCF. - The resistance of SCF solenoid: 70~80Ω 2) Check PAD of Pickup roller 3) Check the Gear of pickup Unit 4) Check paper installation in cassette. 5) Check cable connection or wire defect. 	<ol style="list-style-type: none"> 1. Replace the pick-up clutch for SCF. If not improved, replace SCF board 2. Replace PAD. - Refer to "6-11" 3. Replace Pickup Unit Gear. - Refer to "6-11" 4. Reinstall paper properly. 5. Connect the cable correctly, or replace the cable.
Jam 1 "Paper is stopped on feed sensor"	<ol style="list-style-type: none"> 1. Check the Feed sensor. - Refer to DCU mode "08" 2. Check the Feed Sensor actuator 3. Check the paper installation in cassette. 	<ol style="list-style-type: none"> 1. Replace Feed Sensor. - Refer to "4-11" 2. Replace Feed Sensor actuator. - Refer to "4-11, 6-2" 3. Reinstall paper properly.

Error status	Check	Solution
Main Motor	<ul style="list-style-type: none"> - Refer to DCU mode “00” 1. Check the supply voltage. (+24 V$\overline{\text{DC}}$) Engine board CN1 -2,5 pin 2. Check the Motor cable for cuts or pinched wiring. 3. Check the resistance for Motor between pin No. 1 to 3(4 to 6) The resistance of motor : 3Ω approx. 4. Check the Engine board. 5. Check Gear of Motor Drive Unit. - Check all the gear for correct installation. 	<ul style="list-style-type: none"> 1. Replace to cover open unit. 2. Replace cable 3. Replace Motor. 4. Replace Engine board. 5. Replace Motor Drive Unit - Refer to “4-6, 6-9”
Paper Empty	1) 1st Cassette Feeder <ul style="list-style-type: none"> 1. Check the paper empty sensor - Refer to DCU mode “07” 2. Check the paper empty sensor actuator. 	<ul style="list-style-type: none"> 1. Replace the paper empty sensor on Engine board. 2. Replace paper empty sensor actuator.
	2) Multi Purpose Feeder <ul style="list-style-type: none"> 1. Check the paper empty sensor for MP. - Refer to DCU mode “07” 2. Check the MP paper empty sensor actuator. 	<ul style="list-style-type: none"> 1. Replace MP sensor assembly. 2. Replace MP paper empty sensor actuator. If not improved, replace the engine board
	3) Second Cassette Feeder <ul style="list-style-type: none"> 1. Check the paper empty sensor for SCF - Refer to DCU mode “07” 2. Check the paper empty sensing actuator for SCF. 	<ul style="list-style-type: none"> 1. Replace the paper empty sensor on S.C.F board. 2. Replace MP paper empty sensor actuator.

5-4 .Connector Pin Assignment

5-4-1. Engine Board Connector Pin Assignment

CONNECTOR	PIN-NO	DESCRIPTION	IDLE	ACTIVE	IN/OUT
CN1 MOTOR	1	MOTOR_PB*	+24V	PULSE	O
	2,5	+24V	+24V	+24V	-
	3	MOTOR_PB	+24V	PULSE	O
	4	MOTOR_PA*	+24V	PULSE	O
	6	MOTOR_PA*	+24V	+24V	O
CN3 DUPLEX	1	+24V	+24V	+24V	O
	1	D_CLUTCH	+24V	L	-
CN2 FAN	1	+24V	+24V	+24V	-
	2	NC	NC	NC	-
	3	FAN	+24V	L	O
CN4 CASSETTE BOARD	1	CAST_SENS1	H	L	I
	2	CAST_SENS2	H	L	I
	3	CAST_SENS3	H	L	I
	4	DGND	DGND	DNGD	-
CN5 SMPS	1	+24VS2	+24V	+24V	-
	2	FUSERON	+24V	L	O
	3,5,7	AGND	AGND	AGND	-
	4	+5Vs	+5V	+5V	-
	6,8,10	+5V	+5V	+5V	-
	9,11,12	DGND	DGND	DGND	-
	13,14,15,16	+24VS2	+24V	+24V	-
CN6 JOINT BOARD INTERFACE	1,2,3	+5V	+5V	+5V	-
	4	MP_CLUTCH	L	0.7V	O
	5	+5Vs	+5V	+5V	-
	6	Q_LAMP	L	0.7V	O
	7,9	+24VS2	+24V	+24V	-
	8	SCF_READY	H	L	I
	10	STS_SCF	PULSE	PULSE	I
	11,13	AGND	AGND	AGND	-
	12	MP_PAPER	H	L	I
	14	TONER	H	L	I
	15,17	DGND	DGND	DGND	-
	16	CMD_SCF	PULSE	PULSE	O
	18	OPT_CLK	PULSE	PULSE	O
CN8 THERMISTOR	1	THERMISTOR	-	-	-
	2	THERMISTOR	-	-	-
CN7 DCU	1	+5V	+5V	+5V	-
	2	DCU_DATA	PULSE	PULSE	I/O
	3	DCU_CLK	CLOCK	CLOCK	O
	4	DGND	DGND	DGND	-

5-4-2. Joint Board Connector Pin Assignment

CONNECTOR	PIN-NO	DESCRIPTION	IDLE	ACTIVE	IN/OUT
CN501 JOINT BOARD INTERFACE	1,2,4	+5V	+5V	+5V	-
	3	MP_CLUTCH	L	0.7V	O
	5	Q_LAMP	L	0.7V	O
	6	+5Vs	+5V	+5V	-
	7	SCF_READY	H	L	I
	8,10	+24VS2	+24V	+24V	-
	9	STS_SCF	PULSE	PULSE	I
	11	MP_PAPER	H	L	O
	12,14	AGND	AGND	AGND	-
	13	TONER	H	L	I
	15	CMD_SCF	PULSE	PULSE	O
	16,18	DGND	DGND	DGND	-
	17	OPT_CLK	PULSE	PULSE	O
CN503 SCF INTERFACE	1	+5V	+5V	+5V	-
	2	AGND	AGND	AGND	-
	3	+24V	+24V	+24V	-
	4	STS_SCF	PULSE	PULSE	O
	5	CMD_SCF	PULSE	PULSE	I
	6	OPT_CLK	PULSE	PULSE	I
	7	SCF_READY	H	L	O
	8	DGND	DGND	DGND	-
CN502 MP_CLUTCH	1	+24V	+24V	+24V	-
	2	MP_CLUTCH	+24V	L	O
CN504 Q_LAMP	1	+5V	+5V	+5V	-
	2	Q_LAMP	+5V	L	O
CN505 MP_SENSOR	1	MP_SENSOR	H	L	I
	2	DGND	DGND	DGND	-
	3	+5V	+5V	+5V	-
CN506 TONER	1	+5V	+5V	+5V	-
	2	TONER	H	L	O
	3	AGND	AGND	AGND	-

CONNECTOR	PIN-NO	DESCRIPTION	IDLE	ACTIVE	IN/OUT
CN9 LSU	1	DGND	DGND	DNGD	-
	2	VDO	H	L	O
	3	LDON	H	L	O
	4	DPI_SEL	H	L	O
	5	+5Vs	+5V	+5V	-
	6	HSYNC	H	L	I
	7	NC	-	-	-
	8	LSU_CLK	CLK	CLK	O
	9	LREADY	H	L	I
	10	PMOTOR	+24V	+24V	-
	11	AGND	AGND	AGND	-
	12	+24VS2	+24V	+24V	-
	13	STACKER	H	L	I
	14	DGND	DGND	DGND	-
	15	+5V	+5V	+5V	-
	16	KEY_DEV	H	L	I
	17	DGND	DGND	DGND	-
	18	+5V	+5V	+5V	-
CN10 VIDEO CONTROLLER INTERFACE	1	EBUSY	H	L	O
	2,17,19,20,21 22,23,24	DGND	DGND	DNGD	-
	3	EMSG	H	L	O
	4	EXIT_PAP	H	L	O
	5	CCLK	H	PULSE	I
	6	PRINT	H	L	I
	7	VDI	H	L	I
	8	CPRDY	-	-	
	9	PSYNC	H	-	O
	10	READY	H	L	O
	11	HSYNC	H	L	O
	12	NC	NC	NC	-
	13,15,16,18 25,27,28	+5V	+5V	+5V	-
	14	CMSG	H		I

5-4-3. S.C.F Board Connector Pin Assignment

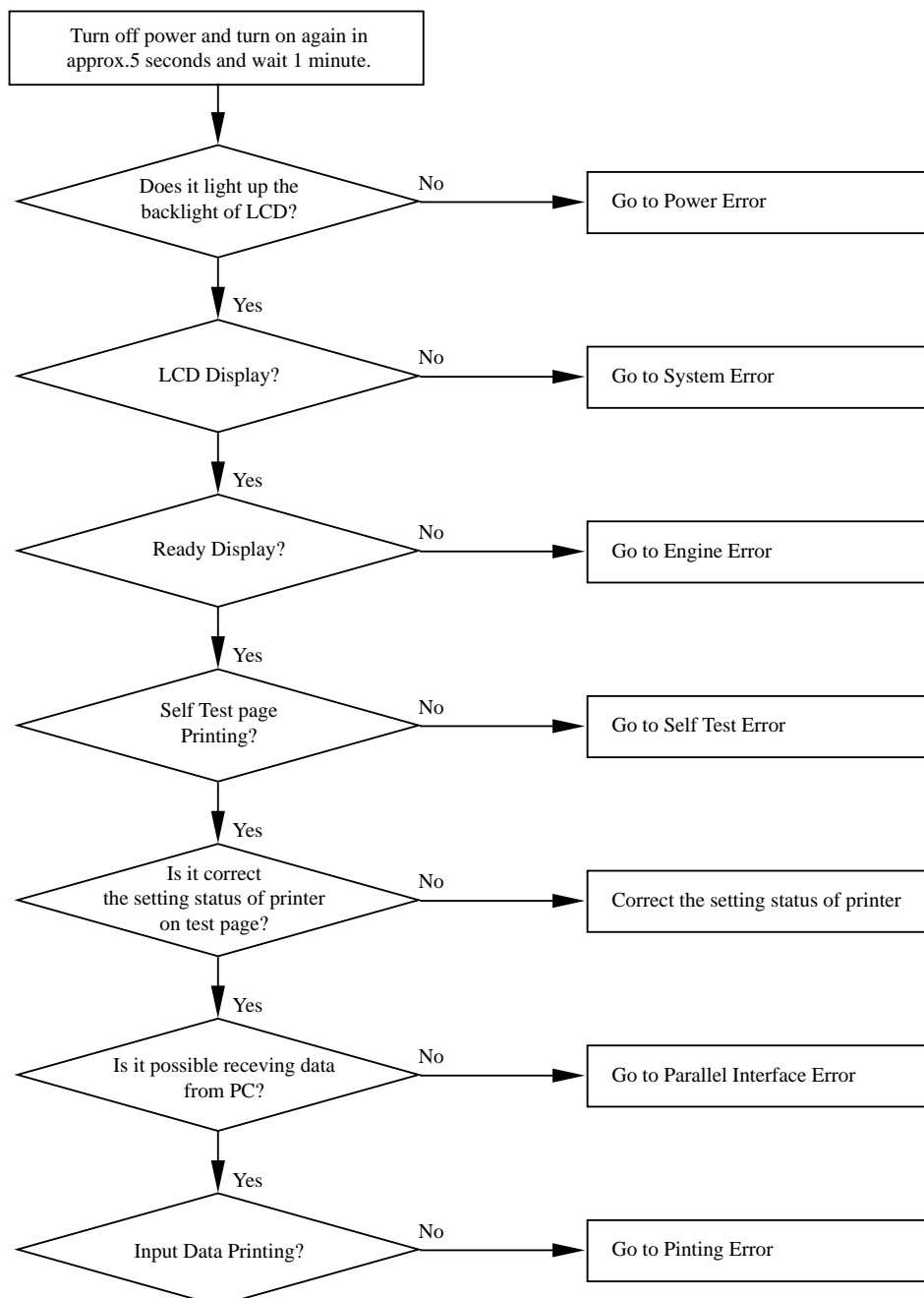
CONNECTOR	PIN-NO	DESCRIPTION	IDLE	ACTIVE	IN/OUT
CN1 ENGINE JONIT BOARD INTERFACE	1	+5V	+5V	+5V	-
	2	AGND	AGND	AGND	-
	3	+24V	+24V	+24V	-
	4	STS_SCF	PULSE	PULSE	O
	5	CMD_SCF	PULSE	PULSE	I
	6	OPT_CLK	PULSE	PULSE	I
	7	SCF_READY	H	L	O
	8	DGND	DGND	DGND	-
CN2 MOTOR	1	MOT_PA	+24V	PULSE	-
	2	MOT_PB	+24V	PULSE	O
	3	MOT_PA*	+24V	PULSE	O
	4	MOT_PB*	+24V	PULSE	O
CN3 DCU	1	+5V	+5V	+5V	-
	2	DCU_IN/OUT	PULSE	PULSE	I/O
	3	DCU_CLK	CLOCK	CLOCK	O
	4	DGND	DGND	DNGD	-
CN4 PICK UP	1	+24V	+24V	+24V	-
	2	CLUTCH	+24V	L	O
CN5 CASSETTE	1	CASET_1	H	L	I
	2	CASET_2	H	L	I
	3	CASET_3	H	L	I
	4	DGND	DGND	DNGD	-

5-5 .Troubleshooting of Video Controller

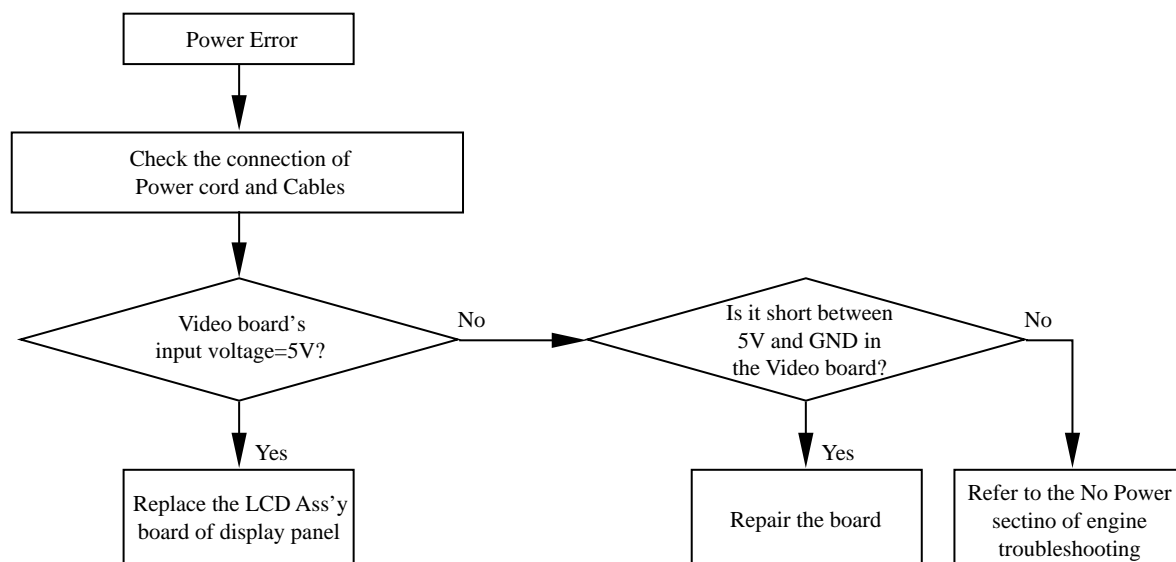
Most electronic products are sensitive to connectors and assemblies that are not complete seated. Therefore, before starting the troubleshooting procedure, do a mechanical check of all the connectors and assemblies to make sure that everything is properly seated.

1. For a complex malfunction, check first for a bad weld, short circuit or loose wire on the solder area of the board
2. Input low level is standard for the TTL logic level below 0.8V.
Input high level is standard for the TTL logic level above 3.5V.
But, for PowerPC 603e, the input low level is less than 0.8V, and the input high level is more than 2.0V.
3. USE an oscilloscope or logic analyzer for inspecting the crystal oscillator or its waveform.

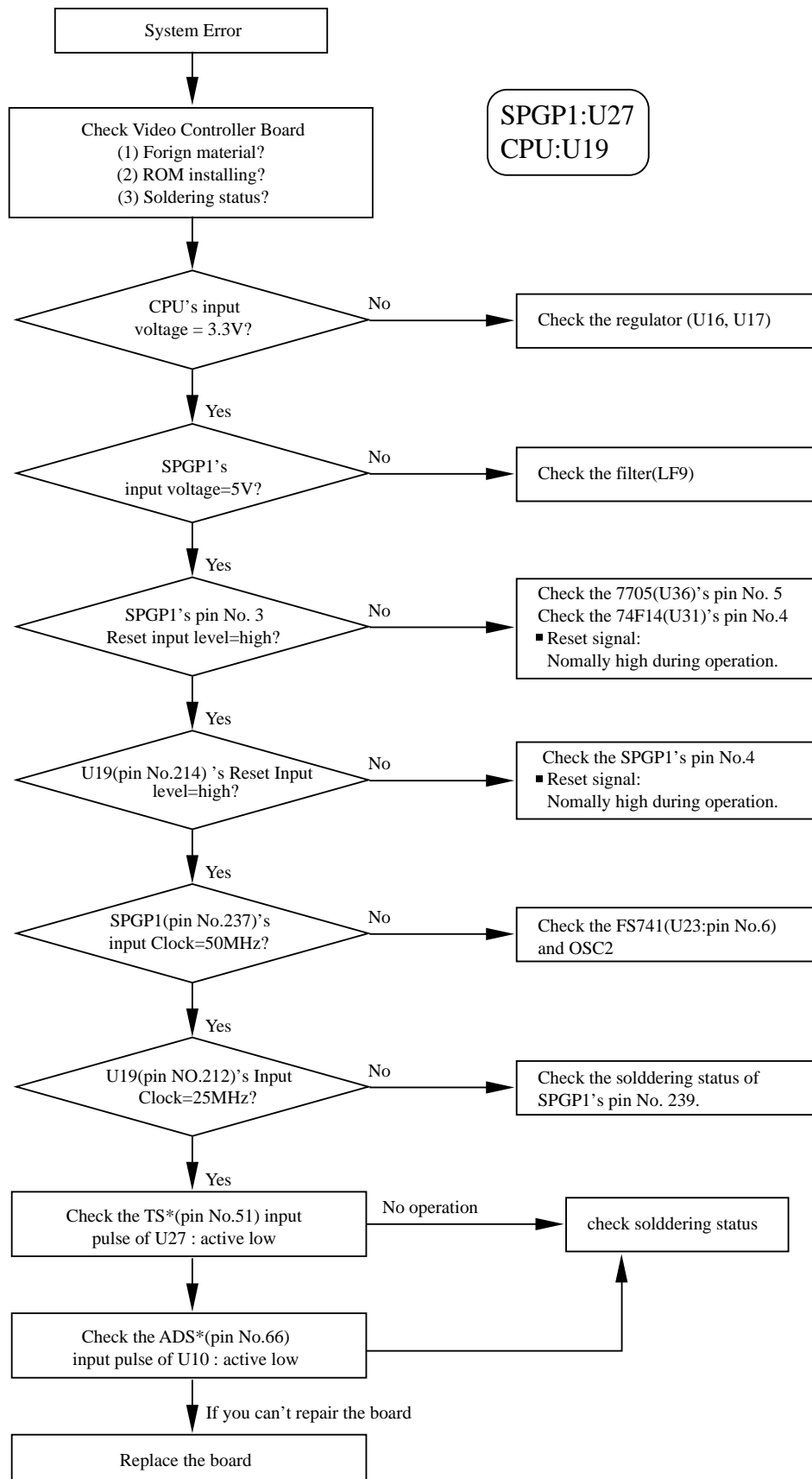
5-5-1. Troubleshooting Flow Chart



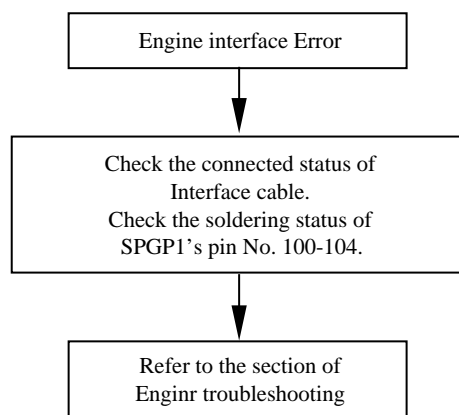
● Power Error



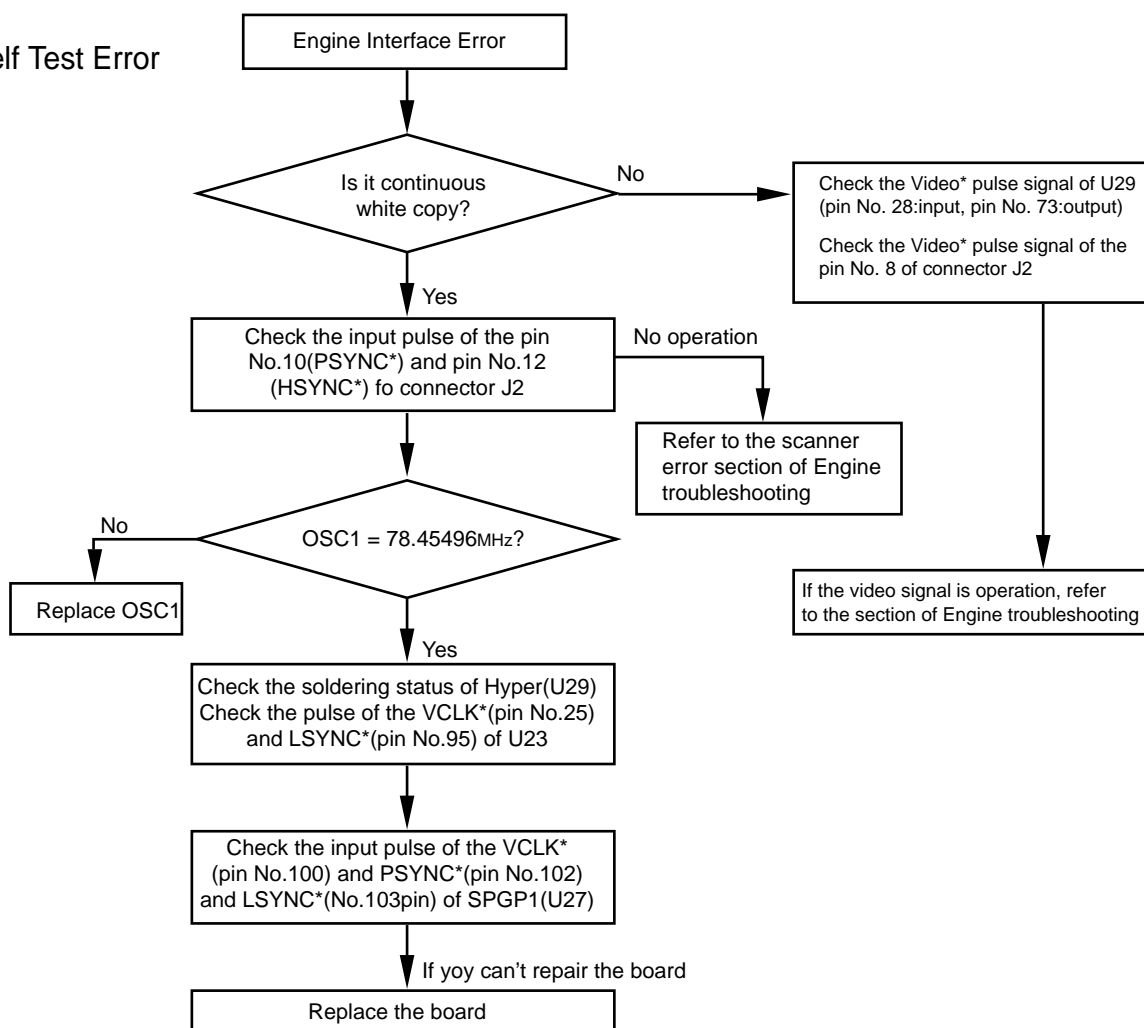
● System Error



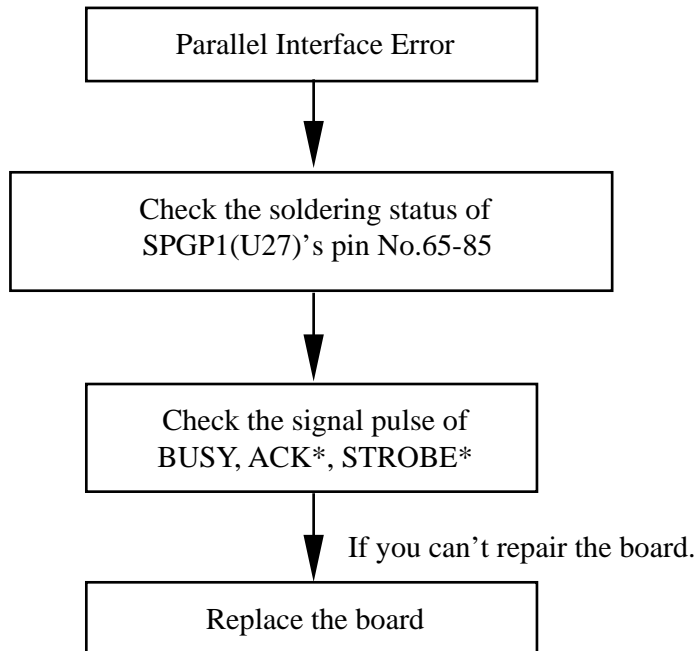
● Engine Error



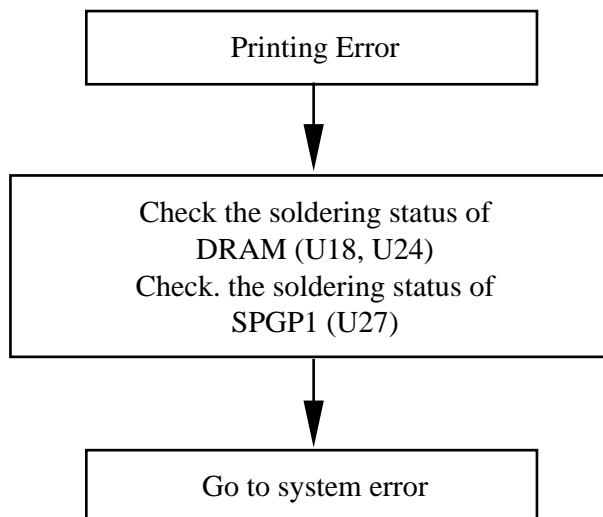
● Self Test Error



● Parallel Interface Error



● Printing Error



5-5-2. Troubleshooting Table of Video Controller Board

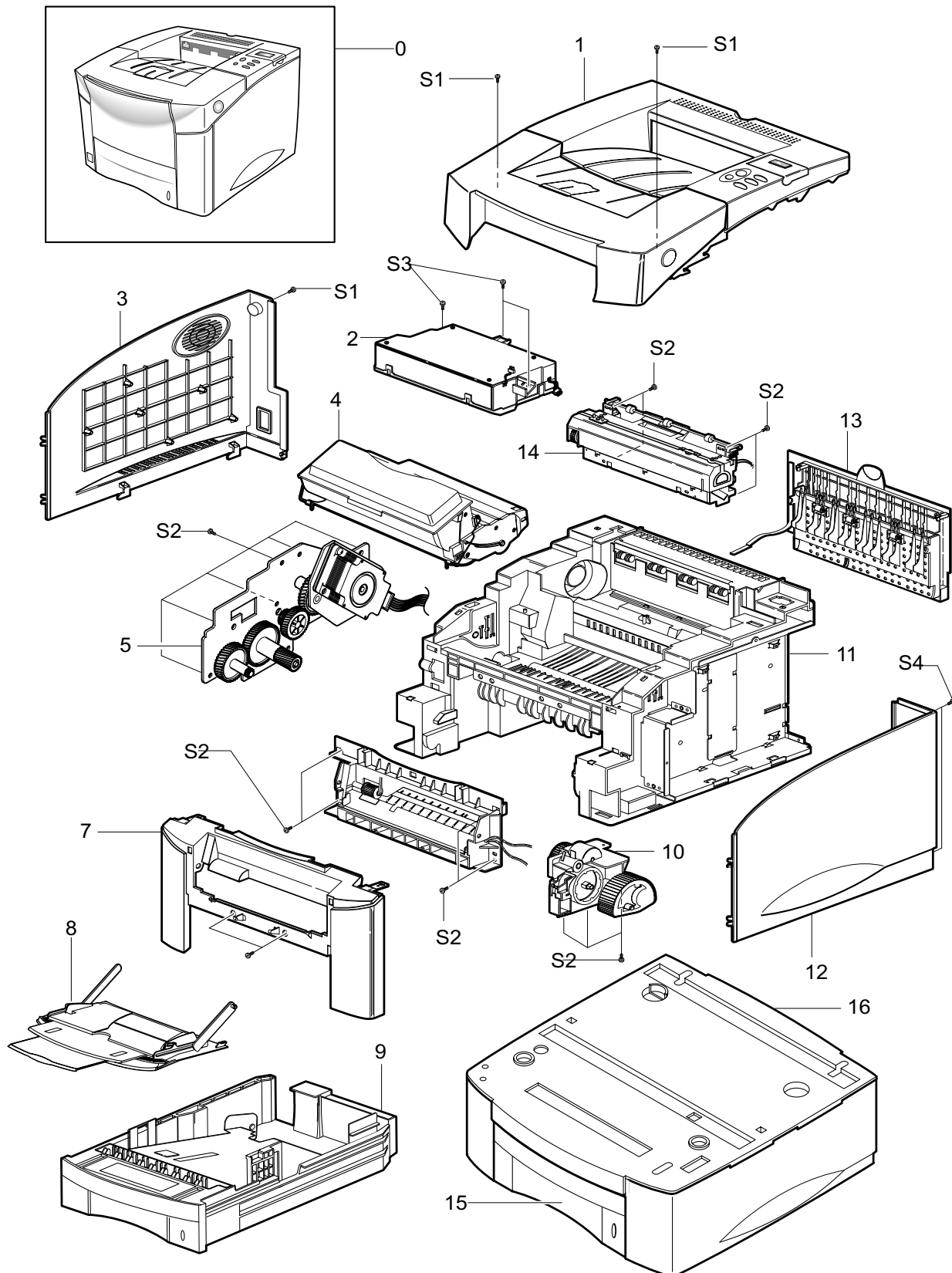
NO.	Error Type	Ccheck List	Repair
1	The backlight of LCD is not lit up	Power cord connection	Connect the power cord
		Vcc voltage(nominal is +5V) level	Refer to the section of Engine troubleshooting
		Vcc voltage should be in the range between+4.38~+5.2V	Repair board
		Short Between Vcc and GND	Repair board
		Mutual connection of engine, key panel to LCD panel's connected cable(10pin), video board to key panel's connected cable(20pin) and engine interface cable(28pin) The pin of connector is straigh.	Connect the cable to connector
2	It doesn't displayed characters on LCD	Mutual connection of panel cabel(10pin) video board to key panel's connected cable(20pin)	Confirm the connection of connector
		Any component damage on a video controller board.	Repair or replace it with appropriate tools. If uanable to do this, replace video board.
		Any foreign conductive chips of solder or material is on the video controller board or is laid between IC pins after power off.	Remove any foreign conductive chips on the video controller board.
		Reset Error:Reset signal is normal high during operation	
		System source clock is a 50MHz Check point : U23(FS741)'s pin No.6,	Replace the FS741
		The output clock of SPGP1 is a 25MHz The input clock of CPU(U19) is a 25MHz	Replace the board
3	White copy	The video data colck source is a 78.45496MHz at OSc1 The input clock of U29 is a 78.45496MHz The output clock of U29 is a 16MHz The input clock of U19's pin No.125 is a 16MHz	Replace the board
		Check the normal operation of HSYNC and PSYNC*	Active low impulse
4	DRAM Error	*Check the DRAM address signals.(pin No. 17-20, 23-28 : U18, U24) *Check the DRAM data signals. (pin No. 2-5. 7-10. 33-36. 38-41 : U18, U24)	
5	EEPROM	*Check the EEPROM clock signal. (pin No. 2 : U1) *Check the EEPROM data signals. (pin No. 3,4 : U1)	
6	ROM Error	*Check the ROM chip select signals and read signal (pin No. 12,14) *Check the ROM data signals. (pin No. 15-22, 24-31 : U3, U13)	
7	Engine Error	*Refer to the section of Engine troubleshooting	
8	Parallel Interface Error	* *Check the operation of printer driver. * Check the printer cable(bidirectional cable)	Refer to USER's manual Replace the printer cable
9	General desc-riptions of troubleshooting	*Please refer to the user's manual. *If you can't fix the trouble of video controller board, replace the video board by the verified board.	Replace the board

MEMO

6. Exploded Views & Parts List

- 6-1. Main Ass'y**
- 6-2. Cover Ass'y**
- 6-3. Frame Ass'y**
- 6-4. Cassette Ass'y**
- 6-5. MP Tray Ass'y**
- 6-6. Pick Up Ass'y**
- 6-7. Fuser Ass'y**
- 6-8. Shield Ass'y**
- 6-9. Bracket Duplex Ass'y**
- 6-10. Bracket Motor Ass'y**
- 6-11. Frame SCF Ass'y**
- 6-12. Cassette SCF Ass'y**

6-1 Main Ass'y



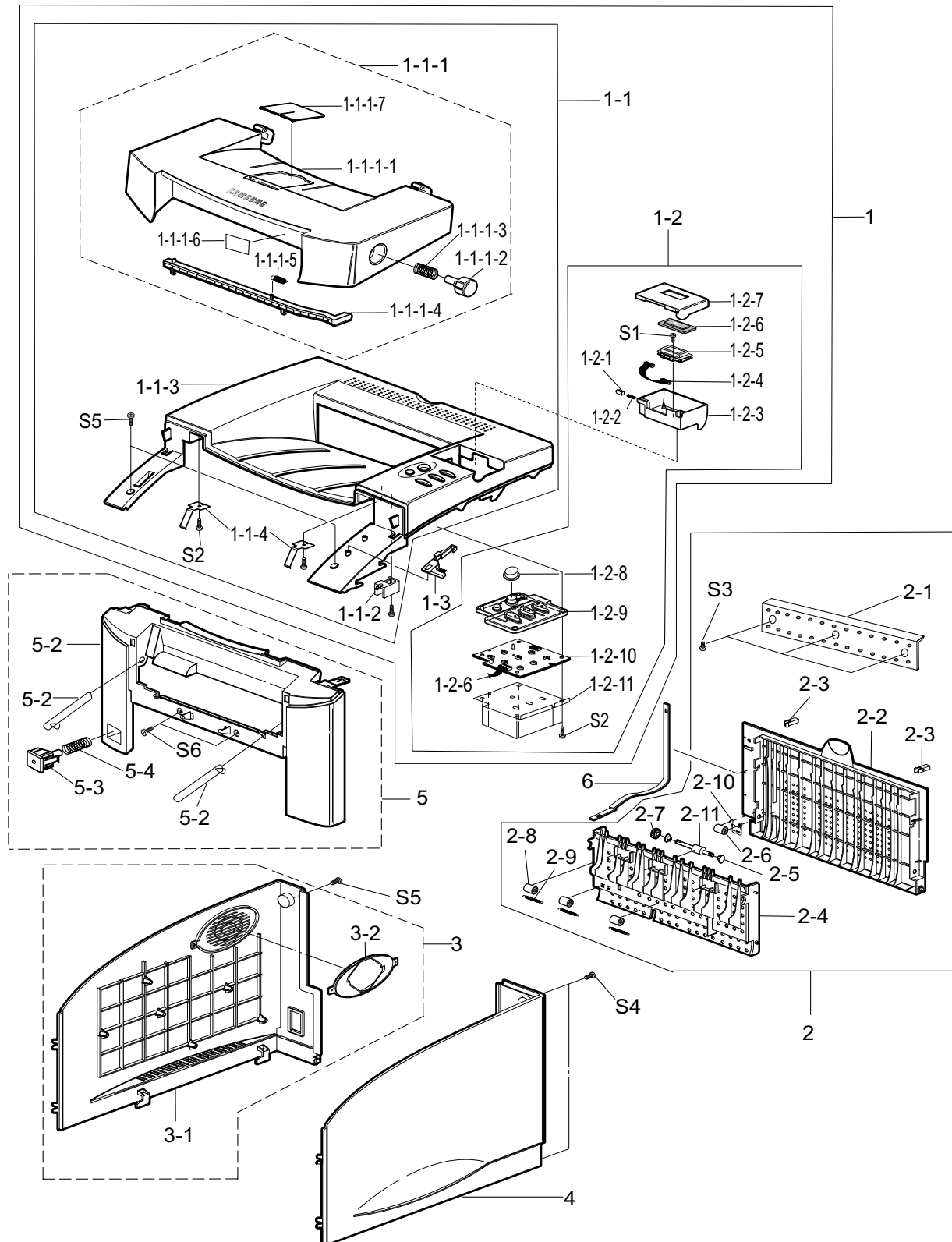
Main Ass'y Parts List

Location NO.	Description	SEC.Code	Q'ty	A/S	Remark
0	MAIN SET				
1	ELA HOU-COVER HOUSING	*	1	X	
2	UNIT-LSU	JC59-00005A	1	O	
3	MEA RACK-COVER LEFT	JC96-01025B	1	O	
4	ELA HOU-DEVE UNIT(D)	*	1	X	
5	ELA HOU-BRKT MOTOR	JC96-01951A	1	O	
6	ELA HOU-MP TRAY	JC96-01055A	1	O	
7	MEA RACK-COVER FRONT	JC97-01024B	1	O	
8	MEC-COVER TRAY	*	1	X	
9	MEA-RACK FEEDER CST	JC97-01023C	1	O	
10	MEA RACK-PICK UP	JC97-01039A	1	O	
11	PMO-FRAME BASE	*	1	X	
12	PMO-COVER-RIGHT	JC72-40941E	1	O	
13	MEA RACK-COVER REAR	JC97-01026B	1	O	
14	ELA HOU-FUSER ASS'Y	JC96-02033A	1	O	220V
	ELA HOU-FUSER ASS'Y	JC96-02034A	1	O	110V
15	MEA RACK-CAST SCF	*	1	X	
16	MEA RACK-SCF AS'Y	*	1	X	



Indicate part is for electrical safety components

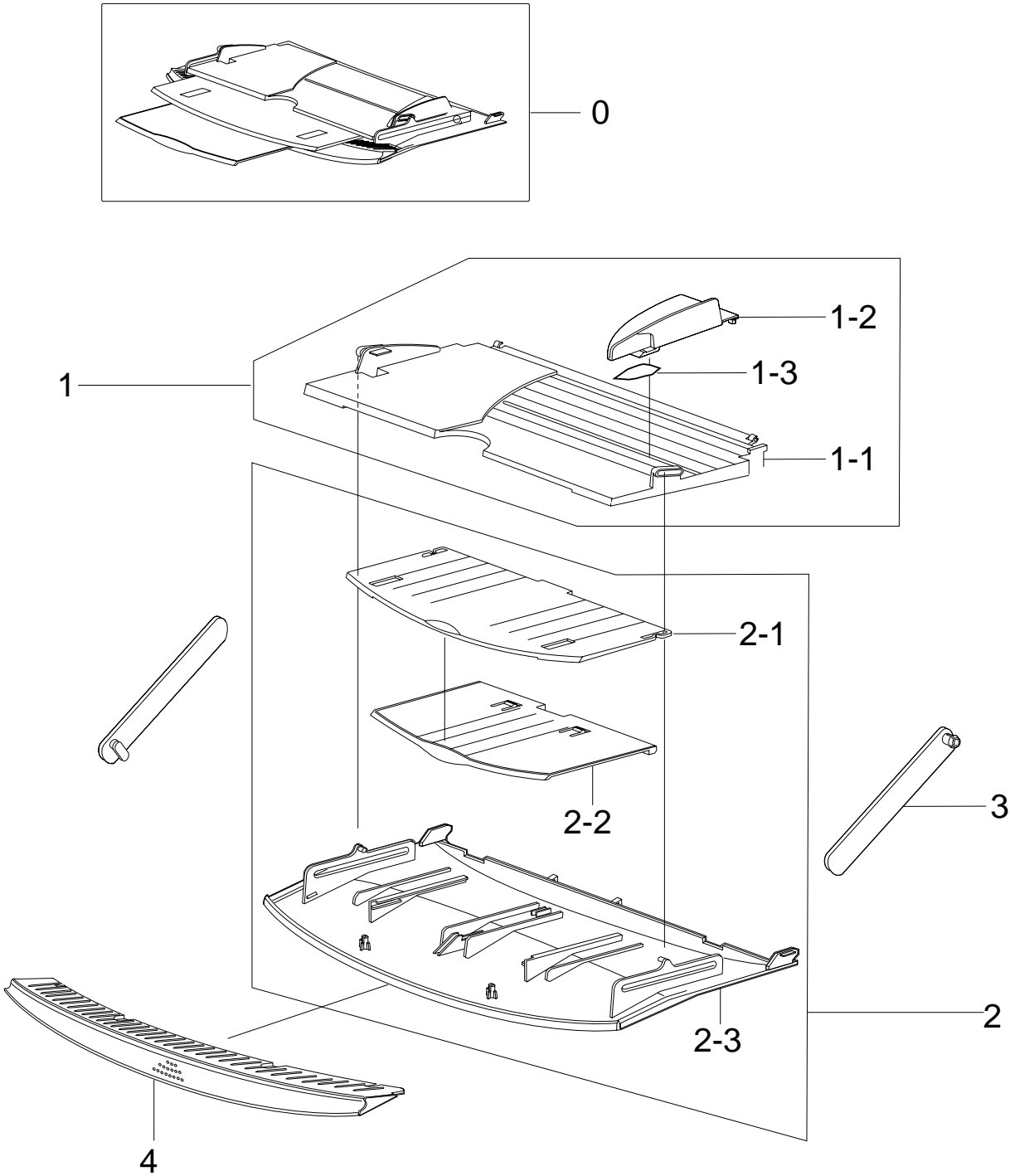
6-2 Cover Ass'y



Cover Ass'y Parts List

Location NO.	Description	SEC.Code	Q'ty	A/S	Remark
1	ELA HOU-COVER OUSING	*	1	X	
1-1	ELA HOU-COVER TOP	JC96-01335C	1	O	7300N/XEF Only
	ELA HOU-COVER TOP	JC96-01335M	1	O	7300N/XEC Only
1-1-1	MEA RACK-COVER OPEN	*	1	X	
1-1-1-1	PMO-COVER OPEN	*	1	X	
1-1-1-2	PMO-BUTTON OPEN	*	1	X	
1-1-1-3	SPRING-CS	*	1	X	
1-1-1-4	PMO-HOOK OPEN	*	1	X	
1-1-1-5	SPRING-HOOK LEVER2	*	1	X	
1-1-1-6	LABEL(P)-LSU CLEAN	*	1	X	
1-1-2	PMO-STOPPER HINGE	*	1	X	
1-1-3	PMO-COVER TOP	*	1	X	
1-1-4	IPR-SPRING HINGE	*	2	X	
1-2	ELA UNIT-PNL&LCD	JC96-02035B	1	O	
1-2-1	PMO-LCD LOCKER	*	1	X	
1-2-2	SPRING-LCD LOCKER	*	1	X	
1-2-3	PMO-HOUSING PANEL L	*	1	X	
1-2-4	CBF HARNESS-LCD	*	1	X	
1-2-5	PBA SUB DISP-LCD	*	1	X	
1-2-6	PMO-WINDOW PANEL	*	1	X	
1-2-7	PMO-HOUSING PANEL U	*	1	X	
1-2-8	PMO-KEY ONLINE	*	1	X	
1-2-9	PMO-KEY SEESAW	*	1	X	
1-2-10	PBA SUB DISP-PANEL	*	1	X	
1-2-11	IPR-INSULATOR PANEL	*	1	X	
1-2-12	CBF HARNESS-PANEL	*	1	X	
1-3	PMO-HOLDER CLEANER LSU	*	1	X	
2	MEA UNIT-RACK COVER REAR	JC97-01026B	1	O	
2-1	ICT-BRKT REAR COVER	*	1	X	
2-2	PMO-COVER REAR	*	1	X	
2-3	SPRING-REAR	*	2	X	
2-4	PMO-GUIDE INNER DP	*	1	X	
2-5	PMO-BEARING LARGE DP	*	1	X	
2-6	PMO-ROLLER UPPER DP	*	1	X	
2-7	GEAR-DUPLEX	*	1	X	
2-8	PMO-IDLE PICK UP	*	3	X	
2-9	SPRING-FEED ROLL	*	3	X	
2-10	IPR-SPRING UPPER DP	*	1	X	
2-11	RCT-ROLLER REAR DP	*	1	X	
3	MEA RACK-COVER LEFT	JC97-01025B	1	O	
3-1	PMO-COVER LEFT	*	1	X	
3-2	PMO-AIRDUCT	*	1	X	
4	PMO-COVER RIGHT	JC72-40941E	1	O	
5	MEA RACK-COVER FRONT	JC97-01024B	1	O	
5-1	PMO-COVER FRONT	*	1	X	
5-2	PMO-LINK TRAY	JC72-40957D	2	O	
5-3	PMO-BOTTOM POWER	*	1	X	
5-4	SPRING-CS	*	1	X	
6	PMO-STRIFE	JC72-41004A	1	O	
S1	SCREW-TAPTITE	*		X	
S2	SCREW-TAPTITE	*		X	
S3	SCREW-TAPTITE	*		X	
S4	SCREW-TAPTITE	*		X	
S5	SCREW-TAPTITE	*		X	
S6	SCREW-TAPTITE	*		X	

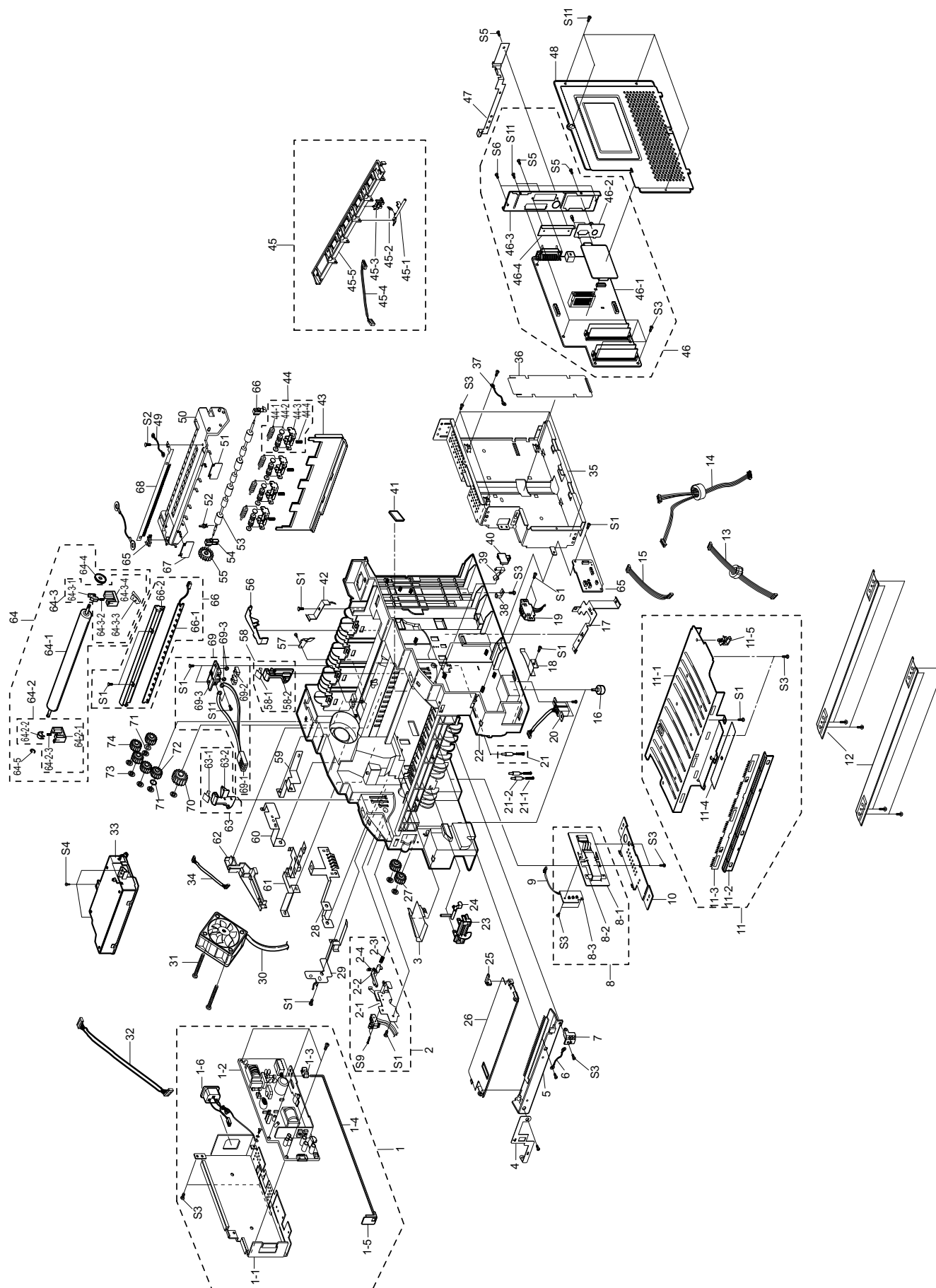
Cover Ass'y



Cover Ass'y Parts List

Location NO.	Description	SEC.Code	Q'ty	A/S	Remark
0		*		X	
1	MEA RACK-TRAY MP	JC97-01038B	1	O	
1-1	PMO-TRAY-MP	*	1	X	
1-2	PMO-SIDE GUIDE TRAY	*	1	X	
1-3	ICT-SHEET SIDE GUIDE	*	1	X	
2	MEA UNIT-COVER TRAY	JC97-01037B	1	O	
1-1	PMO-SUBTRAY-FIRST	*	1	X	
1-2	PMO-SUBTRAY-SECOND	*	1	X	
1-3	PMO-COVER TRAY	*	1	X	
3	PMO-LINK TRAY	JC72-40957D	2	O	
4	PMO-COVER COLOR	*	1	X	

6-3. Frame Ass'y



Frame Ass'y Parts List

Location NO.	Description	SEC.Code	Q'ty	A/S	Remark
1	⚠ ELA HOU-SMPS 220V	*	1	X	220V
	ELA HOU-SMPS 220V	*	1	X	110V
1-1	IPR-SHIELD SMPS	*	1	X	
1-2	⚠ SMPS-PHX V2	JC44-00013A	1	O	220V
	SMPS-110V	JC44-00009A	1	O	110V
1-3	PMO-CAP WIRE SUPPORT	*	1	X	
1-4	SPRING-LINK WIRE	*	1	X	
1-5	PMO-CAP POWER	*	1	X	
1-6	PMO-ROLLER FD R	*	1	X	
2	ELA HOU-BRKT C/O(KME)	*	1	X	
2-1	MEA RACK-BRKT C/O	JC97-01977A	1	O	
2-2	PMO-ACTUATOR C/O	*	1	X	
2-3	SPRING-C/O COM	*	1	X	
2-4	SPRING-C/O	*	1	X	
3	IPR-BRKT DUST	*	1	X	
4	IPR-GROUND MP CON	*	1	X	
5	MEA UNIT-GUIDE P/UPPER	JC97-01407A	1	O	
6	CBF HARNESS-MP GND	JC39-40538A	2	O	
7	PMO-HINGE GUIDE R	*	1	X	
8	ELA HOU-CST SENSER	JC96-01143A	1	O	
8-1	IPR-BRKT PAPER SIZE	*	1	X	
8-2	IPR-PUSH PLT SPRING	*	1	X	
8-3	PBA SUB-CASSETTE	*	1	X	
9	CBF HARNESS-CASSETTE	JC39-40524A	1	O	
10	IPR-GND BAR BOTTOM	*	1	X	
11	MEA UNIT-GUIDE T/R 7300	JC97-01033B	1	O	
11-1	PMO-GUIDE TRANSFER	*	1	X	
11-2	PMO-HOLDER SAW	*	1	X	
11-3	IPR-PLATE SAW	*	1	X	
11-4	PPR-INSULATOR G/TR	*	1	X	
11-5	CABLE CLAMP	*	1	X	
12	IPR-BAR CROSS BOTTOM	JC70-10958A	2	O	
13	CBF HARNESS-JOINT+ENGINE	JC39-00119A	1	O	
14	CBF HARNESS-LSU(18P)	JC39-00011A	1	O	
15	CBF HARNESS-VIDEO	JC39-40530A	1	O	
16	FOOT-RUBBER	*	2	X	
17	IPR-GROUND FUSER R	*	1	X	
18	IPR-PLATE CST GUIDE	*	1	X	
19	ELA HOU-SOCKET CON	JC96-01071A	1	O	
20	CBF HARNESS-SCF1	JC39-40527A	1	O	
21	MEA RACK-TERMINAL HV	JC97-01035A	3	O	
21-1	SPRING-CS	*	1	X	
21-1	ICT-TERMINAL HV	*	1	X	
22	PMO-FRAME BASE	*	1	X	
23	PMO-CAP ACT FEED	*	1	X	
24	PMO-ACTUATOR FEED	JC72-40984A	1	O	
25	PMO-HOLDER G/PAPER	*	1	X	
26	IPR-GUIDE P/FRONT	JC70-10964A	1	O	
27	GEAR-P/UP DRIVE	*	2	X	
28	IPR-GROUND BRKT GEAR	*	1	X	
29	IPR-GROUND OPC	*	1	X	
30	FAN-DC	3103-001047	1	O	
31	SCREW-TAPTITE	*	2	X	
32	CBF HARNESS-SMPS	JC39-40532A	1	O	
33	UNIT-LSU	JC59-00005A	1	O	
34	CBF HARNESS-CASSETTE	JC39-40524A	1	O	
35	IPR-FRAME ICU	*	1	X	
36	PMO-CAP WIRE	*	1	X	
37	CBF HARNESS-MP GND	JC39-40538A	2	O	



Indicate part is for electrical safety components

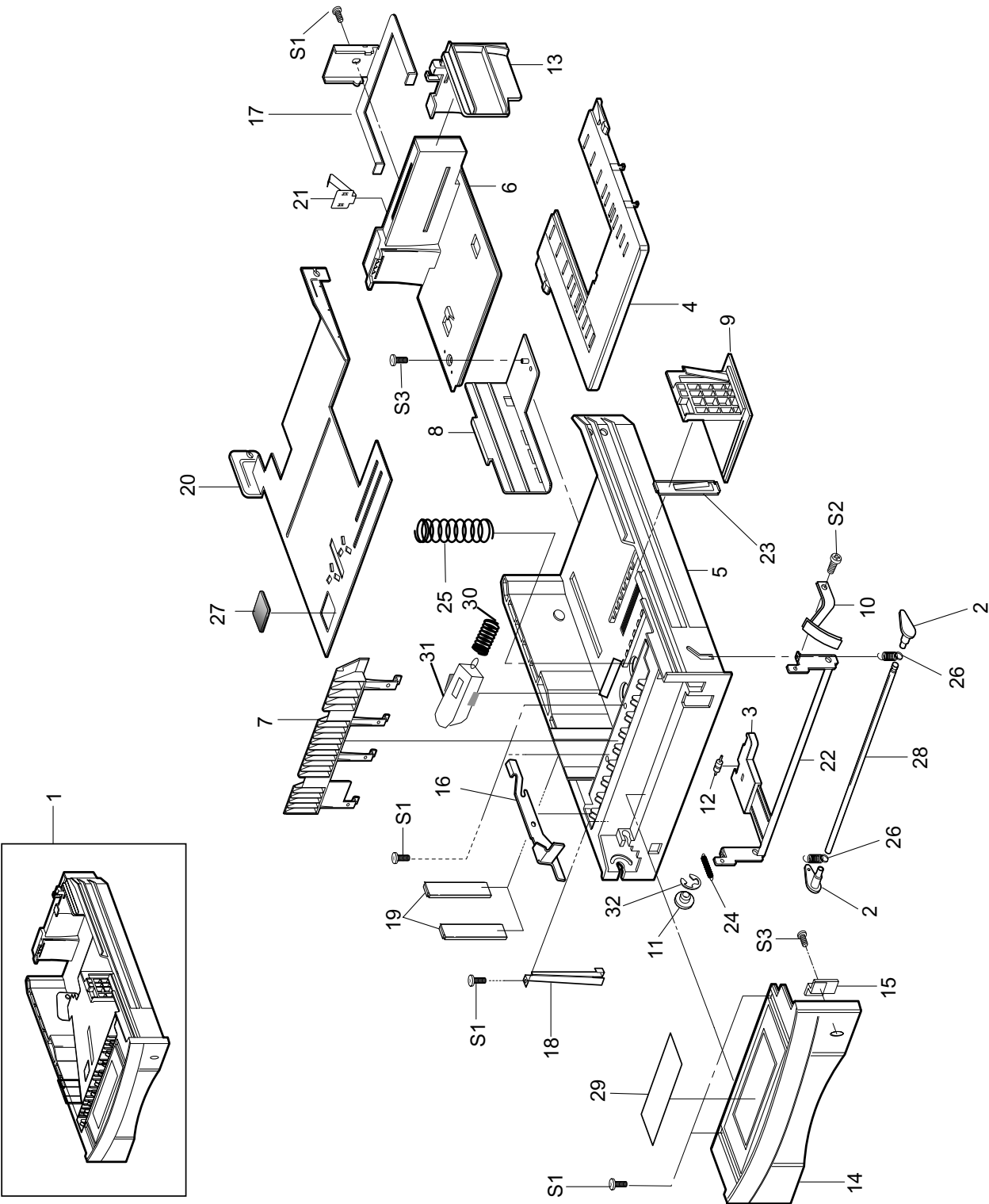
Frame Ass'y Parts List

Location NO.	Description	SEC.Code	Q'ty	A/S	Remark
38	PMO-REAR CST ALIGN	*	2	X	
39	IPR-TERMINAL T/R	*	1	X	
40	PMO-CAP TERMINAL TR	*	1	X	
41	ICT-SPACER FRAME	*	1	X	
42	IPR-GROUND EXIT ROLL	*	1	X	
43	PMO-COVER EXIT	*	1	X	
44	MEA RACK-EXIT ROLLER	JC97-01034A	4	O	
44-1	PMO-ROLLER FD R	*	1	X	
44-2	PMO-ROLLER FD F	*	1	X	
44-3	PMO-HOLDER EXIT ROLL	*	1	X	
44-4	SPRING-EXIT ROLL FD	*	1	X	
45	ELA HOU-DEV KEY	*	1	X	UNABLE
45-1	ACTUATOR DEV KEY	*	1	X	UNABLE
45-2	SPRING C/O	*	1	X	UNABLE
45-3	PHOTO-INTERRUPTER	*	1	X	UNABLE
45-4	CBF HARNESS-DEV KEY	*	1	X	UNABLE
45-5	HOLDER ACT KEY	*	1	X	
46	ELA HOU-CONTROLLER	*		X	
46-1	PBA MAIN-CONTROLLER	JC92-01282A	1	O	
46-2	IPR-BKT SERIAL	JC70-10933A	1	O	
46-3	IPR-BRKT ICU(B)	*	1	X	
46-4	IPR-BKT NETWORK	JC70-10932A	1	O	
47	IPR-GROUND ICU	*	1	X	
48	IPR-SHIELD ICU	JC70-10930A	1	O	
49	CBF HARNESS-DUPLEX GND	*	1	X	
50	PMO-GUIDE EXIT FD	*	1	X	
51	PMO-LEVER STACKING2	JC72-41228D	1	O	
52	PMO-LEVER SEESAW	JC72-41189A	1	O	
53	RCT-ROLLER EXIT FD	JC73-30906A	1	O	
54	MEC-BEARING,EXIT	*	1	X	
55	GEAR-EXIT	JC66-40209A	1	O	
56	PMO-CAP WIRE LSU	*	1	X	
57	IPR-PLATE GRIP CST	*	1	X	
58	MEA UNIT-GUIDE DEV : R	JC97-01403A	1	O	
58-1	SPRING-PS,G/DEV	*	1	X	
58-2	PMO-GUIDE DEV R	*	1	X	
59	IPR-GND SHIELD SMPS	*	1	X	
60	IPR-GROUND DU BRKT	*	1	X	
61	IPR-GROUND FUSER	*	1	X	
62	PMO-CAP WIRE CST	*	1	X	
63	MEA UNIT-GUIDE DEV : L	JC97-01402A	1	O	
63-1	"SPRING-PS,G/DEV"	*	1	X	
63-2	PMO-GUIDE DEV L	*	1	X	
64	MEA RACK-ROLLER TR	JC97-01094A	1	O	
64-1	MEC-ROLLER TRANSFER	JC75-10954A	1	O	
64-2	MEA UNIT-HOLDER TR : L	JC97-01406A	1	O	
64-2-1	PMO-HOLDER TR L	*	1	X	
64-2-2	PMO-BUSH	*	1	X	
64-2-3	SPRING-TR_L	*	1	X	
64-3	MEA UNIT-HOLDER TR : R	JC97-01404A	1	O	
64-3-1	PMO-BUSH	*	1	X	
64-3-2	SPRING-TR_R	*	1	X	
64-3-3	SPRING-PLATE TR	*	1	X	
64-3-4	PMO-HOLDER TR R	*	1	X	
64-4	GEAR-TRANSFER	JC66-40947A	1	O	
64-5	RING-E	*	1	X	
65	PHOTO-INTERRUPTER	*	1	X	
66	ELA HOU-PTL	JC96-01978A	1	O	
66-1	PBA SUB-PTL	*	1	X	

Frame Ass'y Parts List

Location NO.	Description	SEC.Code	Q'ty	A/S	Remark
66-2	PMO-COVER QUENCHING	*	1	X	
67	PMO-LEVER STACKING1	JC72-41188D	1	O	
68	MEC-BRUSH	JC75-10923A	1	O	
69	ELA HOU-FUSER TERMINAL	JC96-01980A	1	O	
69-1	CBF HARNESS-FUSING	JC39-40522A	1	O	
69-2	IPR-TERMINAL FU	*	2	X	
69-3	PMO-HOUSING TERMINAL	*	1	X	
70	GEAR-DP,IDLE	*	1	X	
71	SPRING-CLUTCH	*	2	X	
72	GEAR-EXIT,IDLE(Z17)	*	1	X	
73	RING-CS	*	8	X	
74	GEAR-EXIT/U,ID	JC66-40211B	2	O	
S1	SCREW-TAPTITE	*	1	X	
S2	SCREW-TAPTITE	*	2	X	
S3	SCREW-TAPTITE	*	1	X	
S4	SCREW-TAPTITE	*	3	X	
S5	SCREW-MACHINE	*	1	X	
S6	SCREW-TAPTITE	*	3	X	
S7	SCREW-TAPTITE	*	2	X	
S8	SCREW-TAPTITE	*	1	X	
S9	SCREW-MACHINE	*	2	X	
S10	SCREW-TAPTITE	*	1	X	
S11	SCREW-TAPTITE	*	2	X	

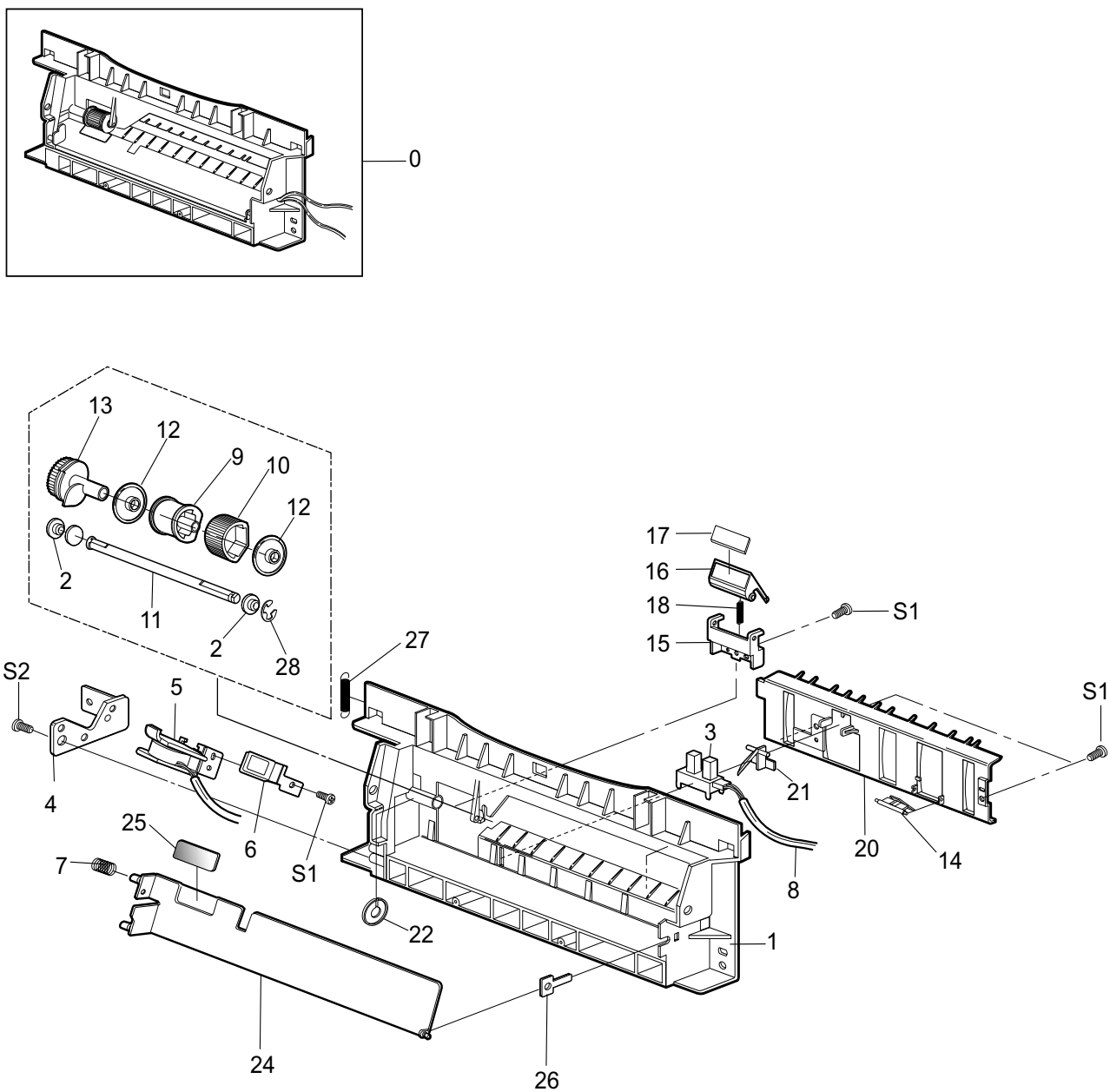
6-4. Cassette Ass'y



Cassette Ass'y Parts List

Location NO.	Description	SEC.Code	Q'ty	A/S	Remark
1	MEA-RACK FEEDER CST	JC75-01023C	1	O	
2	PMO-BUSH K/UP	*	2	X	
3	PMO-CAP PLATE K/UP	*	1	X	
4	PMO-COVER GUIDE EXT	*	1	X	
5	PMO-FRAME CASSETTE	*	1	X	
6	PMO-GUIDE EXT CST	*	1	X	
7	PMO-GUIDE PAPER	*	1	X	
8	PMO-GUIDE PAPER SIZE	*	1	X	
9	PMO-GUIDE SIDE CST	*	1	X	
10	PMO-LEVER PAPER	*	1	X	
11	PMO-LINK LEVER	*	1	X	
12	PMO-ROLLER FD R	*	1	X	
13	PMO-SIDE GUIDE EXT	*	1	X	
14	PMO-SUB GUIDE CAST	*	1	X	
15	PMO-WINDOW PAPER	*	1	X	
16	IPR-FINGER	*	1	X	
17	IPR-GUIDE EXT LOCK	*	1	X	
18	IPR-GUIDE PAPER SCF	*	1	X	
19	IPR-GUIDE PLT PAPER	*	2	X	
20	IPR-PLATE KNOCK UP	*	1	X	
21	IPR-PLATE SPR LOCK	*	1	X	
22	IPR-PLATE SUB K/UP	*	1	X	
23	IPR-SPR PLATE G/SIDE	*	1	X	
24	SPRING-LEVER	*	1	X	
25	SPRING-PLATE K/UP	*	1	X	
26	SPRING-SUB PLATE	*	2	X	
27	RPR-PAD CST	*	1	X	
28	ICT-SHAFT SPR K/UP	*	1	X	
29	LABEL(R)-INSTRUCTION	*	1	X	
30	SPRING-LOCKER,PLATE	*	1	X	
31	PMO-LOCKER PLATE	*	1	X	
32	RING-E	*	1	X	
S1	SCREW-MACHINE	*		X	
S2	SCREW-TAPTITE	*		X	
S3	SCREW-TAPTITE	*		X	

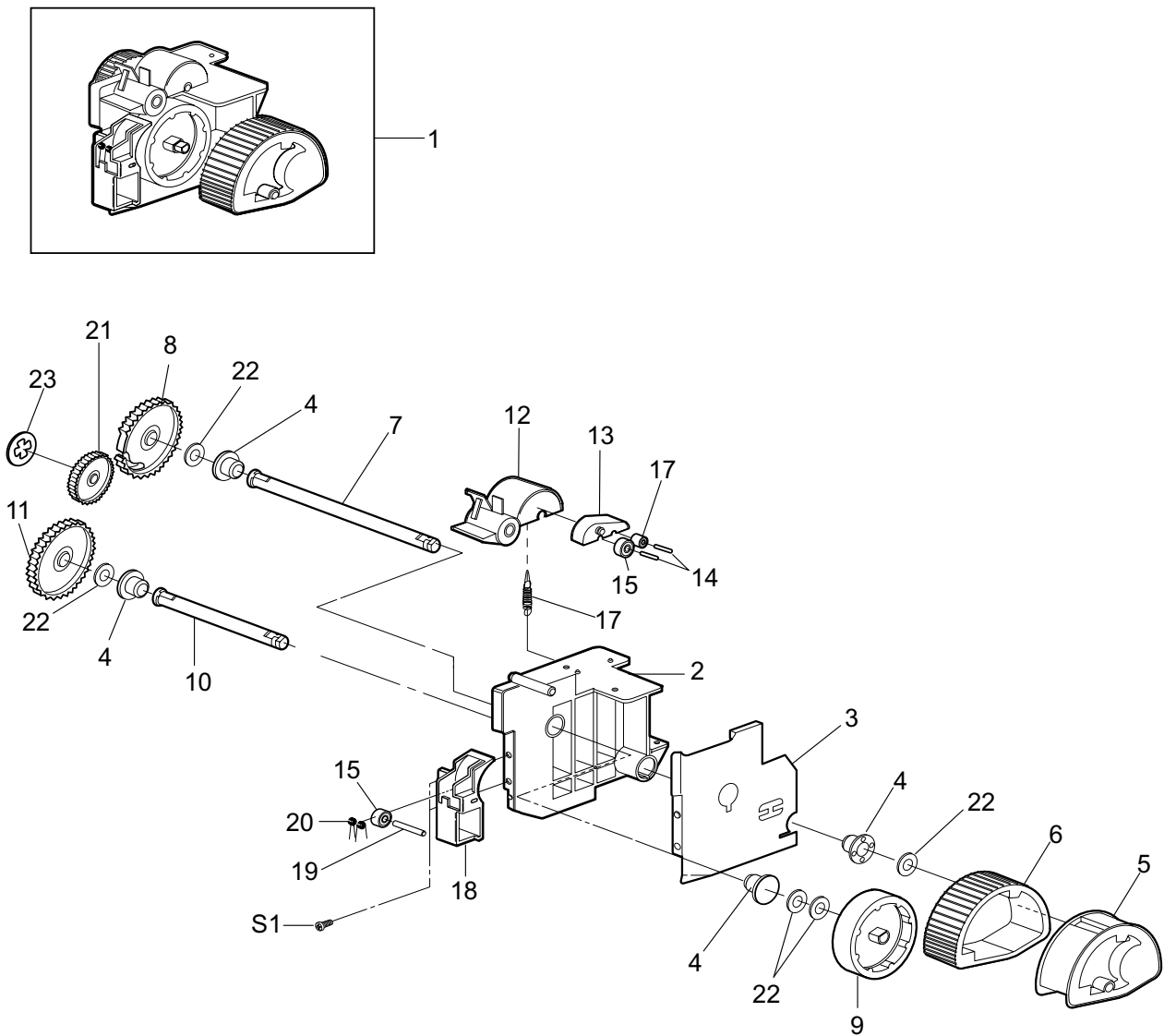
6-5. MP Tray Ass'y



MP Tray Ass'y Parts List

Location NO.	Description	SEC.Code	Q'ty	A/S	Remark
0	ELA HOU-MP TRAY	JC96-01055A	1	O	
1	PMO-FRAME MP	*	1	X	
2	BEARING-PICK UP	*	2	X	
3	PHOTO-INTERRUPTER	*	1	X	
4	IPR-BKT SOLENOID MP	*	1	X	
5	SOLENOID-MP	*	1	X	
7	SPRING-C/O COM	*	1	X	
6	PMO-LIMIT SOLENOID	*	1	X	
8	CBF HARNESS-MP	*	1	X	
9	PMO-HOUSING P/UP MP	*	1	X	
10	RPR-RUBBER P/UP MP	JC73-10907A	1	O	
11	ICT-SHAFT PICK UP MP	*	1	X	
12	PMO-IDLE PICK UP MP	*	2	X	
13	GEAR-CAM	*	1	X	
14	PMO-ACTUATOR PAPER	*	1	X	
15	PMO-BKT HOLDER MP	*	1	X	
16	PMO-HOLDER PAD MP	*	1	X	
17	RPR-FRICTION PAD MP	*	1	X	
18	SPRING-F/P MP	*	1	X	
20	PMO-SUB GUIDE MP	*	1	X	
21	PMO-ACTUATOR EMPTY	*	1	X	
22	PMO-GUIDE RING	*	1	X	
24	IPR-K/UP PLATE MP	*	1	X	
25	RPR-PAD KNOCK UP MP	*	1	X	
26	PMO-BUSHING K/UP MP	*	1	X	
27	SPRING-KNOCK UP MP	*	1	X	
28	RING-E	*	1	X	
S1	SCREW-TAPTITE	*	1	X	
S2	SCREW-TAPTITE	*	1	X	

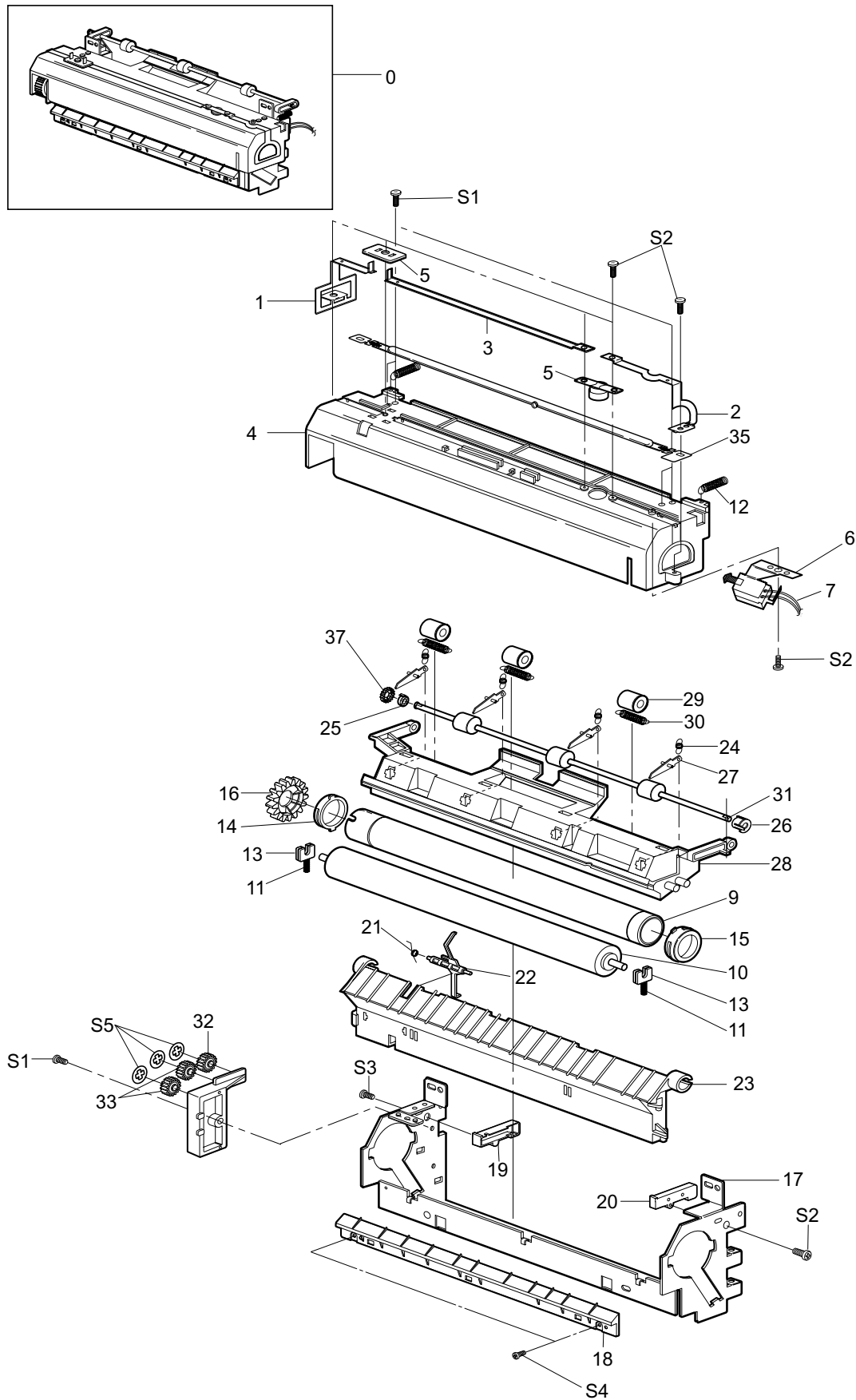
6-6. Pick Up Ass'y





Pick Up Ass'y Parts List

Location NO.	Description	SEC.Code	Q'ty	A/S	Remark
1	MEA RACK-PICK UP	JC97-01039A	1	O	
2	PMO-FRAME FEED	*	1	X	
3	IPR-PAPER GUIDE FEED	*	1	X	
4	BEARING-PICK UP	*	4	X	
5	PMO-HOUSING PICK UP	*	1	X	
6	RPR-RUBBER PICK UP	*	1	X	
7	ICT-SHAFT PICK UP	*	1	X	
8	GEAR-PICK UP	*	1	X	
9	PMO-FEED ROLL DRIVE	*	1	X	
10	ICT-SHAFT FEED	*	1	X	
11	GEAR-FEED	*	1	X	
12	PMO-HOLDER FEED S	*	1	X	
13	PMO-SUB HOLDER FEED	*	1	X	
14	IPR-SHAFT FEED IDLER	*	2	X	
15	PMO-ROLLER FEED L	*	2	X	
16	PMO-ROLLER FEED S	*	1	X	
17	SPRING-FEED SMALL	*	1	X	
18	PMO-HOLDER FEED L	*	1	X	
19	ICT-SHAFT IDLE LARGE	*	1	X	
20	SPRING-FEED LARGE	*	1	X	
21	GEAR-P/UP DRIVE	*	1	X	
22	WASHER-PLAIN	*	5	X	
23	RING-CS	*	1	X	
24	ICT-SUB SHAFT P/UP	*	1	X	
25	IPR GROUND FEED	*	1	X	
S1	SCREW-TAPTITE	*	1	X	

6-7 Fuser Ass'y



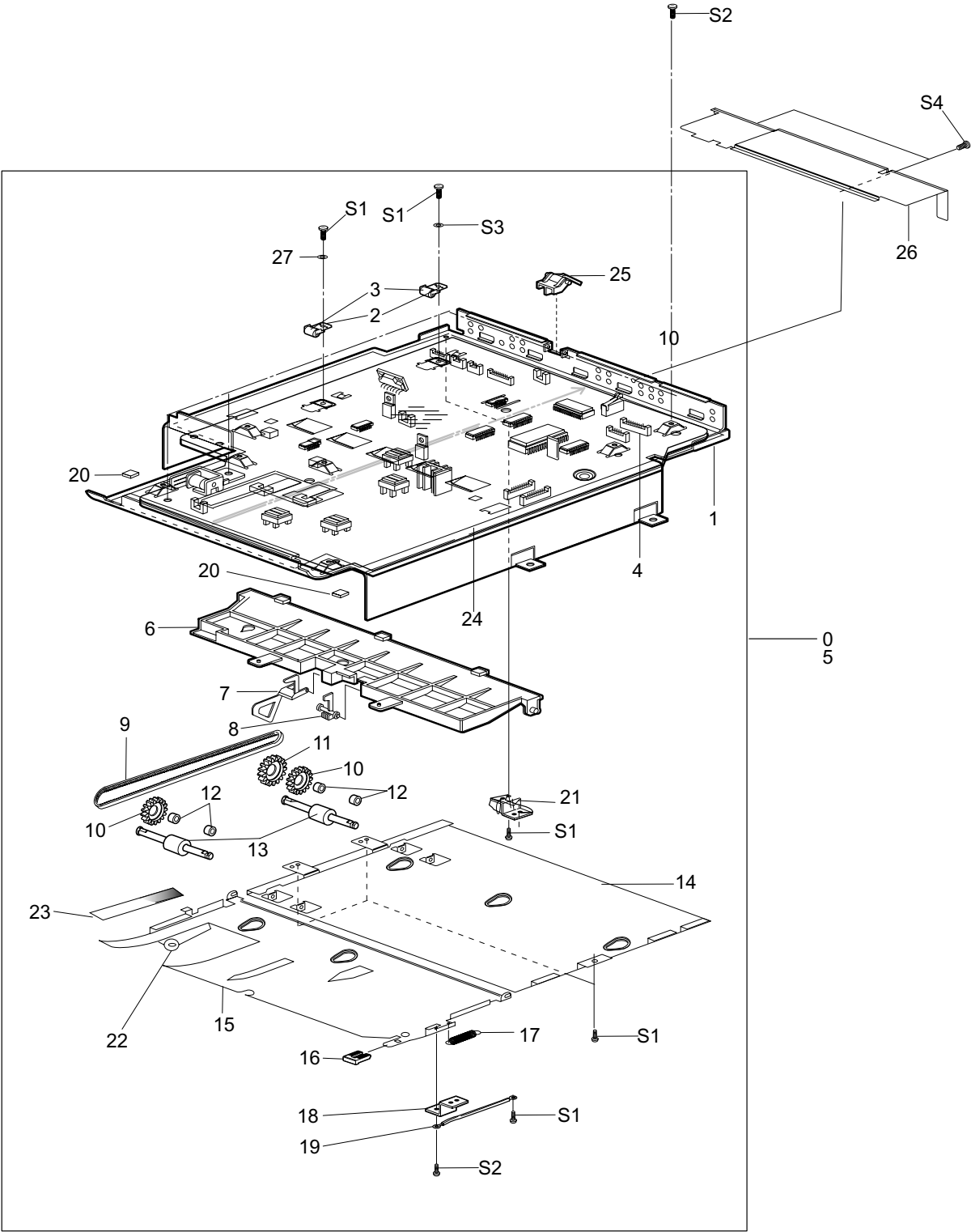
Fuser Ass'y Parts List

Location NO.	Description	SEC.Code	Q'ty	A/S	Remark
0	 ELA HOU-FUSER 220V	JC96-02033A	1	O	220V
	ELA HOU-FUSER 110V	JC96-02034A	1	O	110V
1	IPR-ELECTRODE FU/L	*	1	X	
2	IPR-ELECTRODE FU R	*	1	X	
3	IPR-ELECTRODE M	*	1	X	
4	PMO-COVER FUSER UP	*	1	X	
5	PMO-CAP TERMINAL	*	1	X	
6	IPR-SPR THERMISTOR	*	1	X	
7	THERMISTOR-NTC	1404-001121	1	O	
8	THERMOSTAT-150C	4712-000001	1	O	
9	RCT-ROLLER HEAT	JC73-30904A	1	O	
10	MEA ROLLER PR	JC75-00101A	1	O	
11	SPRING-P/R	*	2	X	
12	SPRING-RAIL	*	2	X	
13	BEARING-PRESSURE/R	JC66-10901A	2	O	
14	BEARING-H/R L	JC66-10902A	1	O	
15	BEARING-H/R R	JC66-10903A	1	O	
16	GEAR-FUSER	JC66-40913A	1	O	
17	IPR-FRAME FUSER	*	1	X	
18	PMO-GUIDE FRONT	*	1	X	
19	PMO-RAIL FUSER L	*	1	X	
20	PMO-RAIL FUSER R	*	1	X	
21	SPRING-ACTUATOR	*	1	X	
22	PMO-ACTUATOR EXIT	*	1	X	
23	PMO-GUIDE REAR	*	1	X	
24	SPRING-SAPERATION	*	4	X	
25	BEARING-EXIT FU L	*	1	X	
26	BEARING-EXIT FU	*	1	X	
27	PMO-GUIDE CLAW	*	4	X	
28	PMO-COVER FUSER LOW	*	1	X	
29	ROLLER-EXIT	*	3	X	
30	SPRING-FUSER EXIT	*	3	X	
31	RCT-ROLLER EXIT FU	*	1	X	
32	GEAR-EXIT/U,ID	*	2	X	
33	GEAR-EXIT,IDLE(Z17)	*	2	X	
34	PMO-BRKT FUSER GEAR	*	1	X	
35	 LAMP-HALOGEN 220V	4713-001072	1	O	220V
	LAMP-HALOGEN 110V	4713-001073	1	O	110V
36	RING-CS	*	4	X	
37	GEAR-EXIT	*		X	
S1	SCREW-TAPTITE	*		X	
S2	SCREW-TAPTITE	*		X	
S3	SCREW-TAPTITE	*		X	
S4	SCREW-TAPTITE	*		X	
S5	SCREW-TAPTITE	*		X	



Indicate part is for electrical safety components

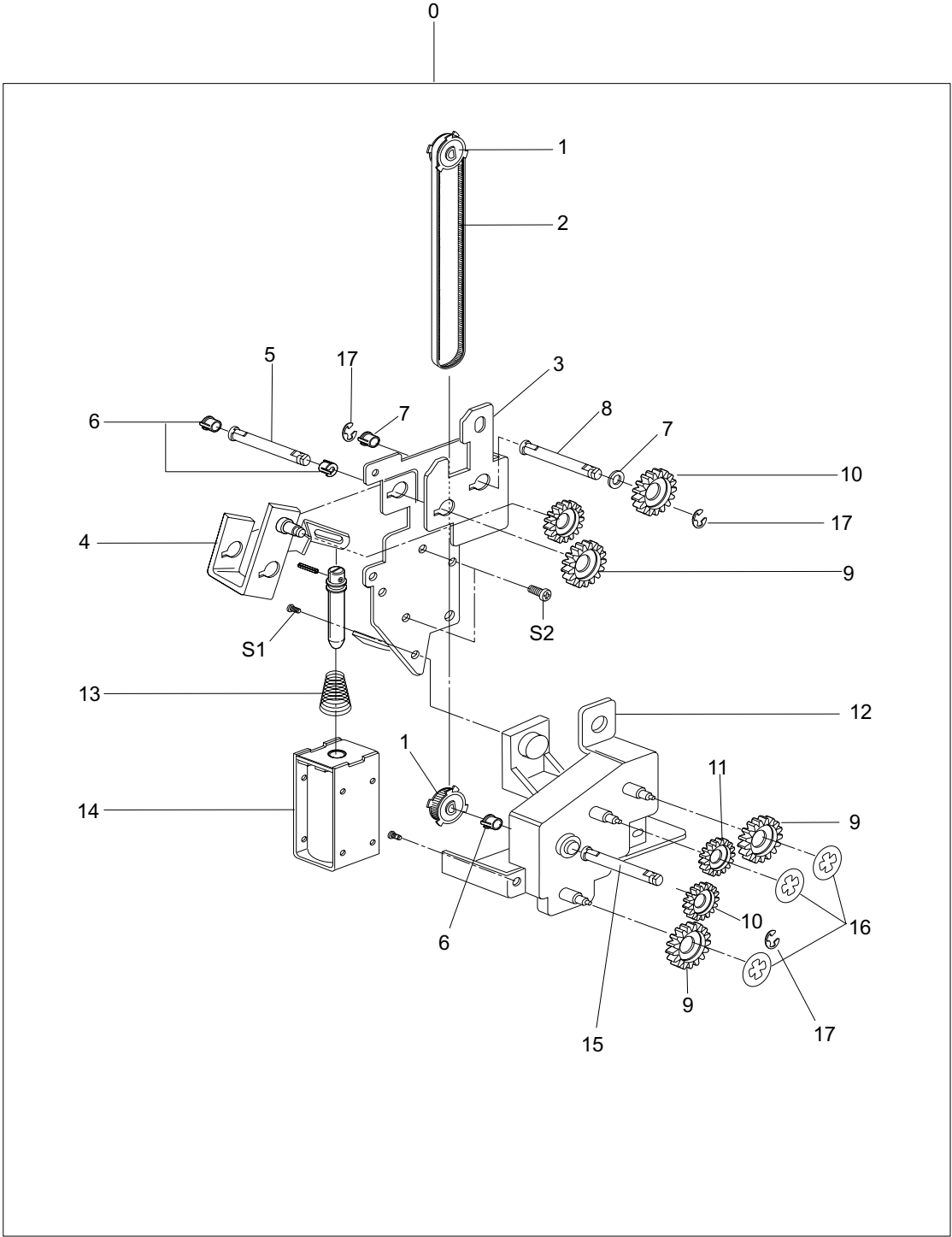
6-8. Shield Ass'y



Shield Ass'y Parts List

Location NO.	Description	SEC.Code	Q'ty	A/S	Remark
O	ELA HOU-ENGINE_7300	*	1	X	
1	IPR-SHIELD PCB	*	1	X	
2	IPR-SPRING UPPER DP	*	2	X	
3	PMO-ROLLER UPPER DP	*	2	X	
4	PBA MAIN-ENGINE_7300	JC92-01211A	1	O	
5	MEA UNIT-SHIELD PCU	JC97-01040B	1	O	
6	PMO-GUIDE UPPER DP	*	1	X	
7	PMO-ACTUATOR EMPTY	*	1	X	
8	PMO-ACTUATOR FRONT DP	*	1	X	
9	BELT-TIMMING	*	1	X	
10	PMO-PULLEY DUPLEX	*	2	X	
11	GEAR-DUPLEX	*	1	X	
12	PMO-BEARING LARGE DP	*	4	X	
13	RCT-ROLLER LOWER DP	*	2	X	
14	IPR-GUIDE DUPLEX	*	1	X	
15	IPR-GUIDE FRONT DP	*	1	X	
16	PMO-LEVER OPEN DP	*	1	X	
17	SPRING-FRONT DP	*	1	X	
18	IPR-BRKT SUPPORTER	*	1	X	
19	CBF HARNESS-DPLX GND	*	1	X	
20	RPR-CUSHION GUIDE	*	1	X	
21	IPR-BRKT IDLE ROLLER	*	1	X	
22	PMO-IDLE ROLLER	*	1	X	
23	IPR-SHEET FRONT DP	*	1	X	
24	PPR-INSULATOR PCU	*	1	X	
25	PMO-ACTUATOR REAR. PD	*	1	X	
26	IPR COVER PCB	*	1	X	
S1	SCREW-TAPTITE	*		X	
S2	SCREW-TAPTITE	*		X	
S3	SCREW-TAPTITE	*		X	
S4	SCREW-TAPTITE	*		X	

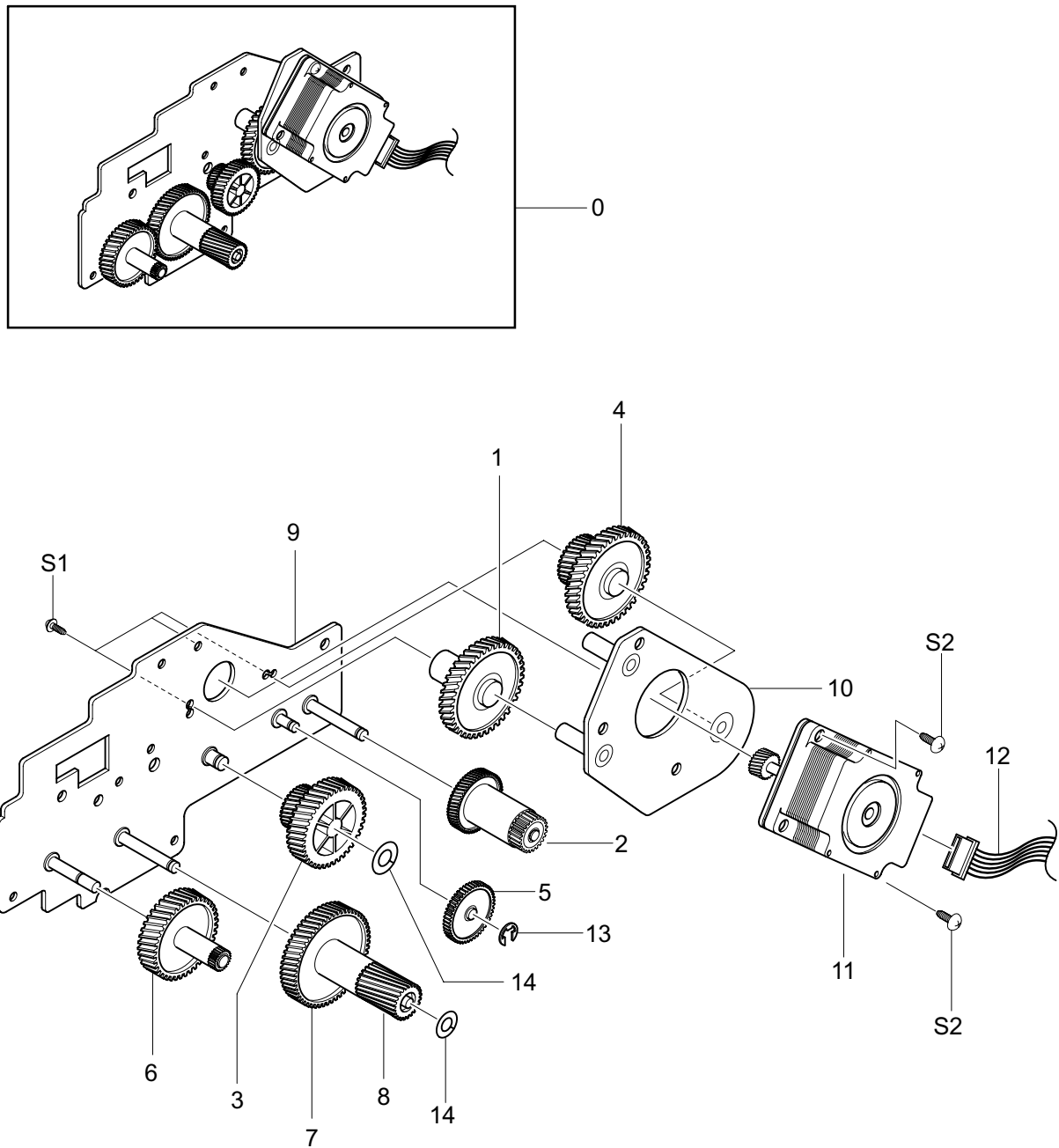
6-9. Bracket Duplex Ass'y



Bracket Duplex Ass'y Parts List

Location NO.	Description	SEC.Code	Q'ty	A/S	Remark
0	ELA HOU-BRKT DUPLEX	JC96-01056A	1	O	
1	PMO-PULLEY DUPLEX	*	2	X	
2	BELT-TIMMING	*	1	X	
3	IPR-BRKT DUPLEX	*	1	X	
4	IPR-LINK DUPLEX	*	1	X	
5	ICT-SHAFT SWING	*	1	X	
6	PMO-BEARING LARGE DP	*	4	X	
7	"PMO-BEARING SMALL,DP"	*	2	X	
8	ICT-SHAFT BELT	*	1	X	
9	"GEAR-DP,IDLE"	*	2	X	
10	GEAR-DUPLEX	*	2	X	
11	"GEAR-EXIT/U,ID"	*	1	X	
12	PMO-BRKT GEAR LOWER	*	1	X	
13	SPRING-SOLENOID DP	*	1	X	
14	SOLENOID-DUPLEX	*	1	X	
15	ICT-SHAFT BELT2	*	1	X	
16	RING-CS	*	3	X	
17	RING-E	*	1	X	
S1	SCREW-TAPTITE	*		X	
S2	SCREW-TAPTITE	*		X	

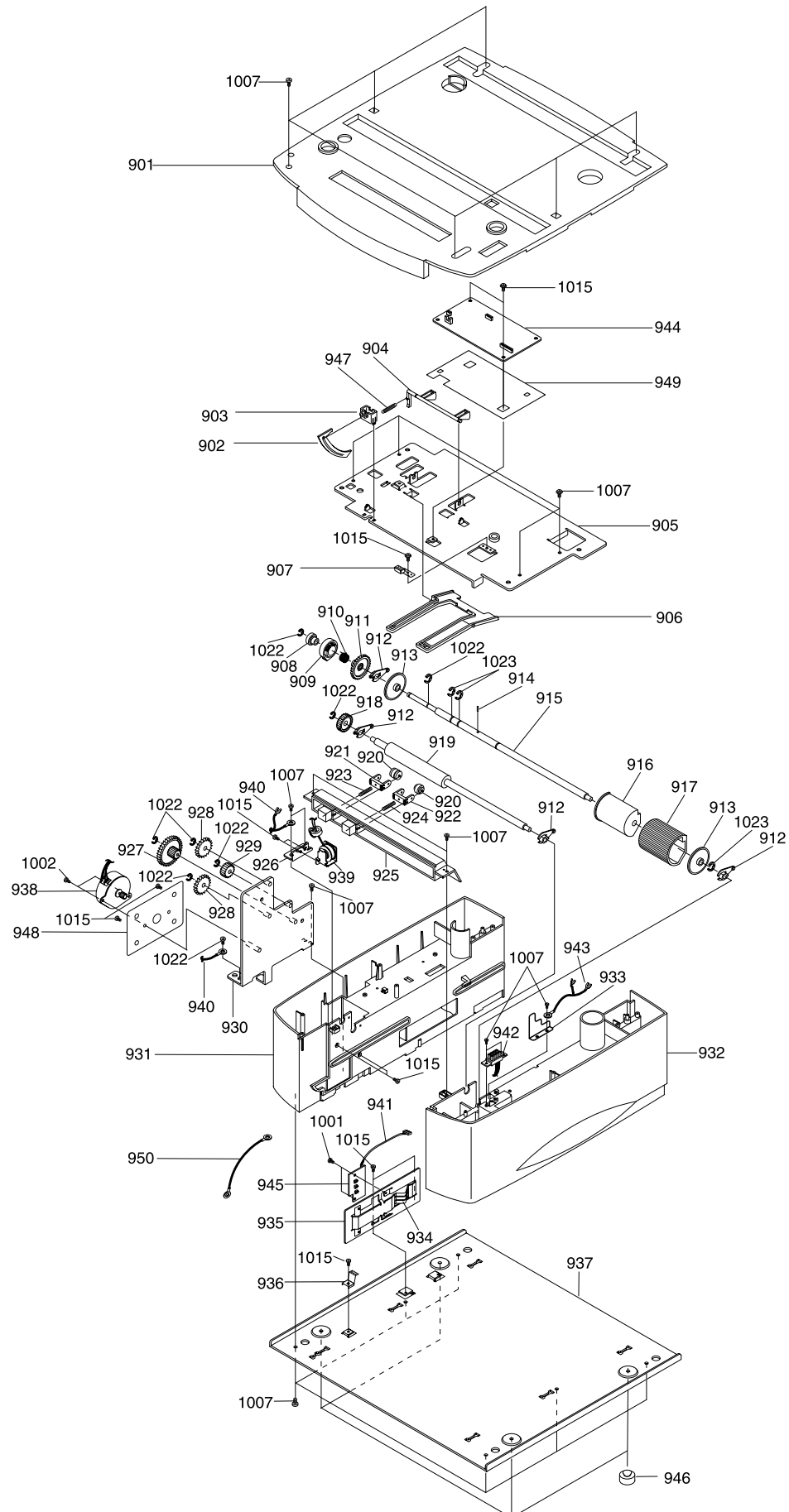
6-10. Bracket Motor Ass'y



Bracket Motor Parts List

Location NO.	Description	SEC.Code	Q'ty	A/S	Remark
0	ELA HOU-BRKT MOTOR	JC96-01951A	1	O	
1	GEAR-IDLE 27	*	1	X	
2	GEAR-FUSER DRIVE	*	1	X	
3	GEAR-RDCN OPC	*	1	X	
4	GEAR-118/23	*	1	X	
5	GEAR-IDLE FU	*	1	X	
6	GEAR-FEED DRIVE	*	1	X	
7	GEAR-OPC DRV(12)	*	1	X	
8	GEAR-OPC DRV2	*	1	X	
9	IPR-BRACKET(MOTOR 21)	*	1	X	
10	IPR-BRACKET MOTOR J	*	1	X	
11	MOTOR-STEP	3101-001226	1	O	
12	CBF HARNESS MOTOR	*	1	X	
13	RING-E	*	1	X	
14	WASHER-PLAIN	*	2	X	
S1	SCREW-MACHINE	*	3	X	
S2	SCREW-MACHINE	*	2	X	

6-11. Frame SCF Ass'y



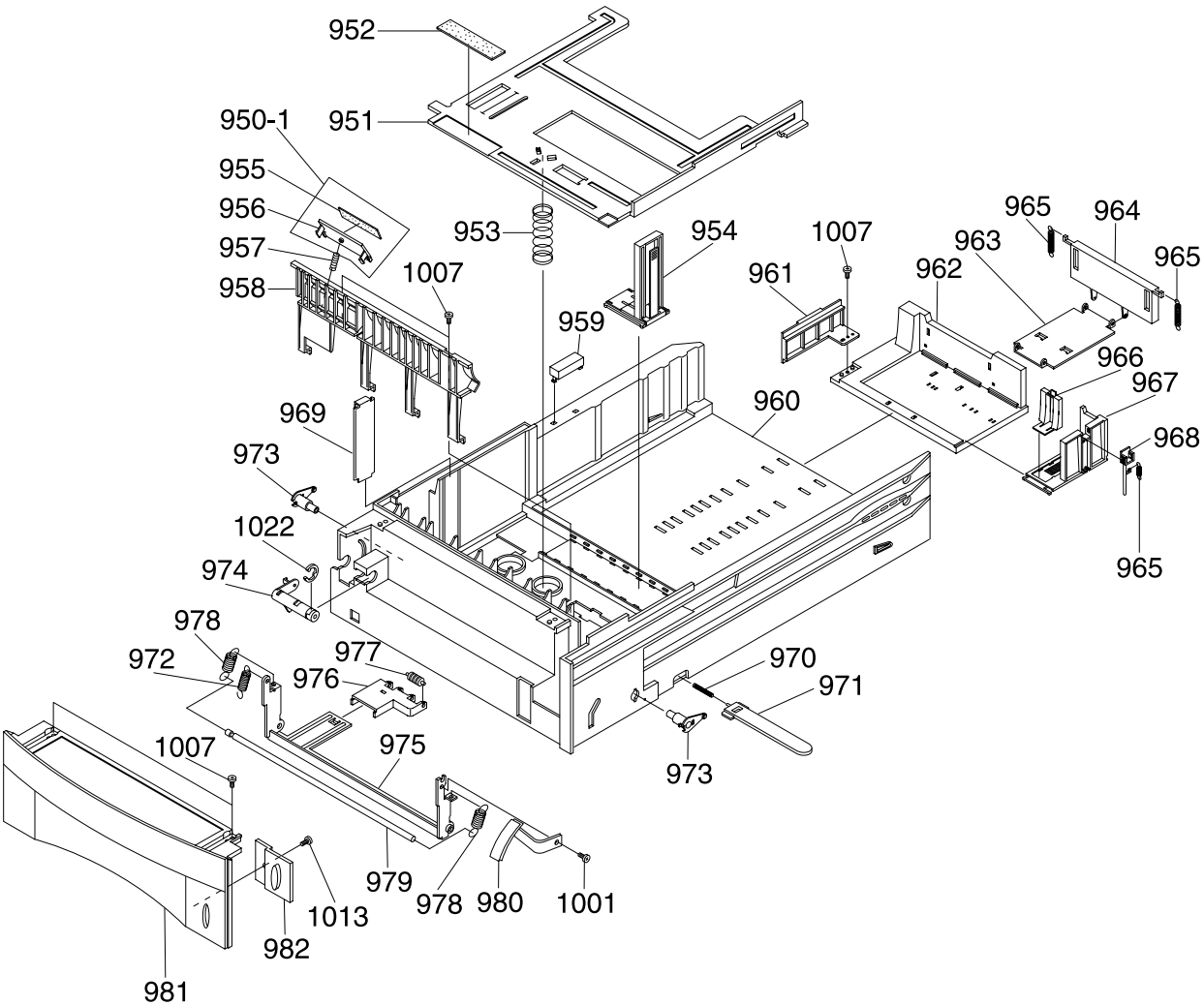
Frame SCF Ass'y Parts List

Location NO.	Description	SEC.Code	Q'ty	A/S	Remark
900	MEA RACK-SCF ASS'Y	*	1	X	
900-1	MEA RACK-FRAME SCF	*	1	X	
902	PMO-SENSOR LEVER	*	1	X	
903	PMO-SENSOR FRAME	*	1	X	
904	PMO-ARM ENV	*	1	X	
905	IPR-CASE TOP	*	1	X	
906	PMO-GUIDE ENV	*	1	X	
907	IPR-GROUND TOP	*	1	X	
908	PMO-HUB_CLUTCH	*	1	X	
909	PMO-COLLAR_CLUTCH_PI	*	1	X	
910	"SPRING-TS, CLUTCH"	*	1	X	
911	GEAR-P/UP OPTION	*	1	X	
912	PMO-BEARING SHAFT	*	3	X	
912	PMO-BEARING SHAFT	*	1	X	
913	PMO-IDLE PICKUP	*	1	X	
914	"ICT-PIN_PARELLED,P/U"	*	1	X	
915	ICT-SHAFT PICK UP	*	1	X	
916	PMO-P/UP HOUSING	*	1	X	
917	RPR-PICK UP ROLL	*	1	X	
918	GEAR-FEED (SCF)	*	1	X	
919	RPR-FEED ROLLER	*	1	X	
920	PMO-IDLE FEED	*	2	X	
921	PMO-IDLE FRAME	*	1	X	
922	PMO-IDLE FRAME1	*	1	X	
923	SPRING-IDLE 1	*	1	X	
924	SPRING-IDLE 2	*	1	X	
925	PMO-GUIDE PAPER2	*	1	X	
926	IPR-SCF SOLENOID	*	1	X	
927	GEAR-IDLE(SCF)	*	1	X	
928	GEAR-IDLE(Z=30)	*	2	X	
929	GEAR-IDLE 19	*	1	X	
930	IPR-SCF MOTOR	*	1	X	
931	PMO-FRAME LEFT	*	1	X	
932	PMO-FRAME RIGHT	*	1	X	
933	IPR-GROUND FEED	*	1	X	
934	IPR-PUSH PLT SPRING	*	1	X	
935	IPR-BRKT PAPER SIZE	*	1	X	
936	IPR-GROUND BOTTOM	*	1	X	
937	IPR-CASE BOTTOM	*	1	X	
938	MOTOR-SCF	*	1	X	
939	SOLENOID-MAGNET	*	1	X	
940	CBF HARNESS-SCF MOT	*	1	X	
941	CBF HARNESS-SCF CST	*	1	X	
942	CBF HARNESS-SCF OPT	*	1	X	
943	CBF HARNESS-SCF FEED	*	1	X	
944	PBA SUB-SCF OPT	*	1	X	
945	PBA SUB-CASSETTE	*	1	X	
946	FOOT-RUBBER SCF	*	4	X	
947	"SPRING-IDLE,SCF"	*	1	X	
948	IPR-SCF MOTOR 1	*	1	X	
949	IPR-INSULATOR SCF	*	1	X	
950	CBF HARNESS-SCF GND	*	1	X	
1001	SCREW-MACHINE	*	2	X	
1002	SCREW-MACHINE	*	3	X	
1007	SCREW-TAPTITE	*	2	X	

Frame SCF Ass'y Parts List

Location NO.	Description	SEC.Code	Q'ty	A/S	Remark
1007	SCREW-TAPTITE	*	2	X	
1007	SCREW-TAPTITE	*	6	X	
1007	SCREW-TAPTITE	*	1	X	
1007	SCREW-TAPTITE	*	2	X	
1007	SCREW-TAPTITE	*	6	X	
1007	SCREW-TAPTITE	*	2	X	
1007	SCREW-TAPTITE	*	4	X	
1015	SCREW-TAPTITE	*	1	X	
1015	SCREW-TAPTITE	*	1	X	
1015	SCREW-TAPTITE	*	2	X	
1015	SCREW-TAPTITE	*	2	X	
1015	SCREW-TAPTITE	*	2	X	
1015	SCREW-TAPTITE	*	2	X	
1015	SCREW-TAPTITE	*	1	X	
1015	SCREW-TAPTITE	*	2	X	
1015	SCREW-TAPTITE	*	4	X	
1022	RING-E	*	1	X	
1022	RING-E	*	4	X	
1022	RING-E	*	2	X	
1023	RING-E	*	3	X	

6-12. Cassette SCF Ass'y



Cassette SCF Ass'y Parts List

Location NO.	Description	SEC.Code	Q'ty	A/S	Remark
950	MEA RACK-CAST SCF	*	1	X	
951	IPR-KNOCK UP(SCF)	*	1	X	
952	RPR-CORK KNOCKUP	*	1	X	
953	SPRING-SCF K/UP	*	1	X	
954	PMO-GUIDE SIDE	*	1	X	
955	RPR-CORK PAD	*	1	X	
956	PMO-FRAME PAD	*	1	X	
957	SPRING-PAD	*	1	X	
958	PMO-GUIDE PAPER1	*	1	X	
959	PMO-DUMMY ENV	*	1	X	
963	IPR-PLATE LEVER	*	1	X	
964	PMO-LEVER REAR	*	1	X	
965	"SPRING-IDLE,SCF"	*	3	X	
966	PMO-GUIDE REAR3	*	1	X	
967	PMO-GUIDE REAR2	*	1	X	
968	PMO-GUIDE LOCK	*	1	X	
969	IPR-PLATE PAPER	*	1	X	
970	"SPRING-LOCKER,PLATE"	*	1	X	
971	PMO-LOCKER PLATE	*	1	X	
972	SPRING-SCF LEVER	*	1	X	
973	PMO-BUSH K/UP	*	2	X	
974	PMO-LINK LEVER	*	1	X	
975	IPR-PLATE SUB K/UP	*	1	X	
976	PMO-CAP PLATE K/UP	*	1	X	
977	PMO-ROLLER FD R	*	1	X	
978	SPRING-SUB PLATE	*	2	X	
979	ICT-SHAFT SPR K/UP	*	1	X	
980	PMO-LEVER PAPER S	*	1	X	
981	PMO-SUB GUIDE CAST	*	1	X	
982	PMO-WINDOW PAPER	*	1	X	
1001	SCREW-MACHINE	*	1	X	
1007	SCREW-TAPTITE	*	1	X	
1007	SCREW-TAPTITE	*	2	X	
1007	SCREW-TAPTITE	*	2	X	
1013	SCREW-TAPTITE	*	1	X	
1022	RING-E	*	1	X	
950-1	MEA-RACK FRAME PAD	*	1	X	

7. Electrical Parts Lists

7-1. Main Engine PBA

SEC CODE	LOCATION NO.	Q'ty	DESCRIPTION
JC92-01211A			PBA MAIN-ENGINE_7300
0401-000005	"D1,D2,D3,D4,D5"	5	DIODE-SWITCHING "1N4148,100V,200MA,DO-35,TP"
0401-000005	"D18,D20,D24,D26,D27"	5	DIODE-SWITCHING "1N4148,100V,200MA,DO-35,TP"
0401-000005	"D501,D502,D503,D504,D506"	5	DIODE-SWITCHING "1N4148,100V,200MA,DO-35,TP"
0401-000005	"D507,D508,D509,D510,D511"	5	DIODE-SWITCHING "1N4148,100V,200MA,DO-35,TP"
0401-000005	"D513,D514"	2	DIODE-SWITCHING "1N4148,100V,200MA,DO-35,TP"
0401-000005	"D7,D8,D9,D10,D11"	5	DIODE-SWITCHING "1N4148,100V,200MA,DO-35,TP"
0402-000129	"D6,D12,D13,D505,D512"	5	DIODE-RECTIFIER "1N4003,200V,1A,DO-41,TP"
0402-000468	"D19,D22,D23,D25"	4	DIODE-RECTIFIER "ESJS58-06,6KV,2mA,DO-201"
0402-001193	"D14,D15,D16,D17,D21"	5	DIODE-RECTIFIER "SHV-04,4KV,20mA,-,TP"
0403-000356	"ZD2,ZD4,ZD6"	3	DIODE-ZENER "UZ5.6BCB,5.6V,5.46-5.7V,500mW,"
0403-000475	ZD1	1	DIODE-ZENER "1N5274B,130V,5%,500mW,DO-35,TP"
0403-000554	ZD3	1	DIODE-ZENER "UZ7.5BM,7.2-7.7V,500mW,DO-35,T"
0403-001104	ZD5	1	DIODE-ZENER "1N5281B,5%,500MW,DO-35,TP"
0501-000010	"Q1,Q4,Q6,Q8,Q9"	5	TR-SMALL SIGNAL "KSC1008,NPN,800mW,TO-92,TP,120"
0501-000010	"Q10,Q11,Q12,Q17,Q18"	5	TR-SMALL SIGNAL "KSC1008,NPN,800mW,TO-92,TP,120"
0501-000010	"Q501,Q503,Q505,Q506"	4	TR-SMALL SIGNAL "KSC1008,NPN,800mW,TO-92,TP,120"
0501-000294	"Q2,Q3,Q5"	3	TR-SMALL SIGNAL "KSA708-Y,PNP,800mW,TO-92,TP,12"
0502-000245	Q504	1	TR-POWER "KSB1151-Y,PNP,1.3W,TO-126,-,16"
0502-001048	Q7	1	TR-POWER "KSD1691,NPN,1.3W,TO-126,BK,160"
0502-001124	"Q13,Q16"	2	TR-POWER "KSD526,NPN,30W,TO-220,BK,120-2"
0604-001033	"OP2,OP3"	2	PHOTO-INTERRUPTER "TR,-,150mW,DIP-4,ST"
0604-001093	OP1	1	PHOTO-INTERRUPTER "TR,-,75mW,DIP-4,BK"
0604-001106	"OP4,OP5"	2	PHOTO-INTERRUPTER "TR,25%-,-,BK"
0801-000019	U10	1	IC-CMOS LOGIC "74HC10,NAND GATE,DIP,14P,300MI"
0801-000528	U11	1	IC-CMOS LOGIC "74HCT574,D FLIP-FLOP,DIP,20P,3"
0801-000722	"U6,U7"	2	IC-CMOS LOGIC "74HC245,TRANSCEIVER,DIP,20P,30"
0801-001262	U3	1	IC-CMOS LOGIC "74HC4060,BINARY COUNTER,DIP,16"
0803-000679	U5	1	IC-TTL "7406,BUFFER/DRIVER,DIP,14P,300"
0903-000219	U8	1	IC-MICROCOMPUTER "88C4316,8BIT,DIP,64P,-,8MHz,ST"
1003-001152	U2	1	IC-MOTOR DRIVER "SLA7026M(LF871),ZIP,18P,-,SING"
1103-001045	U9	1	IC-EEPROM "27E512,64Kx8BIT,DIP,28P,600MIL"
1201-000229	U4	1	IC-OP AMP "324,DIP,14P,300MIL,QUAD,100V/m"
1202-000103	U12	1	IC-VOLTAGE COMP. "393,DIP,8P,300MIL,DUAL,36V,CMO"
1203-000259	U1	1	IC-POS.FIXED REG. "7818,TO-220,3P,-,PLASTIC,17.3"
1404-001141	TH501	1	THERMISTOR-NTC "5.6Kohm,5%,3200K,2.1mW/C,TP"
2001-000003	"R145,R146"	2	R-CARBON "330ohm,5%,1/8W,AA,TP,1.8x3.2mm"
2001-000003	"R40,R41,R42,R43,R135"	5	R-CARBON "330ohm,5%,1/8W,AA,TP,1.8x3.2mm"
2001-000005	"R130,R133"	2	R-CARBON "390ohm,5%,1/8W,AA,TP,1.8x3.2mm"
2001-000006	"R1,R9"	2	R-CARBON "2.4KOHM,5%,1/8W,AA,TP,1.8X3.2MM"
2001-000008	"R154,R156,R159,R505"	4	R-CARBON "15KOHM,5%,1/8W,AA,TP,1.8X3.2MM"
2001-000008	"R25,R80,R86,R89,R105"	5	R-CARBON "15KOHM,5%,1/8W,AA,TP,1.8X3.2MM"
2001-000012	R16	1	R-CARBON "680KOHM,5%,1/8W,AA,TP,1.8X3.2MM"
2001-000019	"R122,R129"	2	R-CARBON(S) "10OHM,5%,1/2W,AA,TP,2.4X6.4MM"
2001-000022	R29	1	R-CARBON(S) "33OHM,5%,1/2W,AA,TP,2.4X6.4MM"
2001-000085	"R162,R163,R180"	3	R-CARBON(S) "100KOHM,5%,1/2W,AA,TP,2.4X6.4MM"
2001-000096	"R48,R82,R91,R92,R116"	5	R-CARBON(S) "1MOHM,5%,1/2W,AA,TP,2.4X6.4MM"
2001-000221	R72	1	R-CARBON "1.2KOHM,5%,1/8W,AA,TP,1.8X3.2MM"
2001-000273	"R56,R100"	2	R-CARBON "100KOHM,5%,1/8W,AA,TP,1.8X3.2MM"
2001-000281	"R110,R134,R165,R166,R178"	5	R-CARBON "100OHM,5%,1/8W,AA,TP,1.8X3.2MM"
2001-000281	"R179,R508"	2	R-CARBON "100OHM,5%,1/8W,AA,TP,1.8X3.2MM"
2001-000281	"R26,R49,R71,R81"	4	R-CARBON "100OHM,5%,1/8W,AA,TP,1.8X3.2MM"
2001-000281	"R87,R88,R95,R102,R103"	5	R-CARBON "100OHM,5%,1/8W,AA,TP,1.8X3.2MM"
2001-000290	"R101,R111,R121,R139,R141"	5	R-CARBON "10KOHM,5%,1/8W,AA,TP,1.8X3.2MM"
2001-000290	"R142,R143,R181,R182,R183"	5	R-CARBON "10KOHM,5%,1/8W,AA,TP,1.8X3.2MM"
2001-000290	"R19,R20,R21,R22,R27"	5	R-CARBON "10KOHM,5%,1/8W,AA,TP,1.8X3.2MM"
2001-000290	"R46,R50,R58,R59,R60"	5	R-CARBON "10KOHM,5%,1/8W,AA,TP,1.8X3.2MM"
2001-000290	"R509,R511"	2	R-CARBON "10KOHM,5%,1/8W,AA,TP,1.8X3.2MM"

Main Engine PBA

SEC CODE	LOCATION NO.	Q'ty	DESCRIPTION	
2001-000290	"R514,R30,R37,R39"	4	R-CARBON	"10KOHM,5%,1/8W,AA,TP,1.8X3.2MM"
2001-000290	"R74,R75,R76,R77"	4	R-CARBON	"10KOHM,5%,1/8W,AA,TP,1.8X3.2MM"
2001-000290	"R93,R94,R96,R97"	4	R-CARBON	"10KOHM,5%,1/8W,AA,TP,1.8X3.2MM"
2001-000362	"R155,R175,R506"	3	R-CARBON	"150OHM,5%,1/8W,AA,TP,1.8X3.2MM"
2001-000362	"R24,R79,R85,R90,R104"	5	R-CARBON	"150OHM,5%,1/8W,AA,TP,1.8X3.2MM"
2001-000429	R157	1	R-CARBON	"1KOHM,5%,1/8W,AA,TP,1.8X3.2MM"
2001-000429	R32	1	R-CARBON	"1KOHM,5%,1/8W,AA,TP,1.8X3.2MM"
2001-000429	"R61,R73,R78,R107,R140"	5	R-CARBON	"1KOHM,5%,1/8W,AA,TP,1.8X3.2MM"
2001-000449	"R33,R47,R125,R126"	4	R-CARBON	"2.2KOHM,5%,1/8W,AA,TP,1.8X3.2MM"
2001-000515	"R108,R109,R120,R138"	4	R-CARBON	"220OHM,5%,1/8W,AA,TP,1.8X3.2MM"
2001-000660	"R15,R38,R167"	3	R-CARBON	"33KOHM,5%,1/8W,AA,TP,1.8X3.2MM"
2001-000734	R177	1	R-CARBON	"4.7KOHM,5%,1/8W,AA,TP,1.8X3.2MM"
2001-000761	"R164,R113"	2	R-CARBON	"430OHM,5%,1/8W,AA,TP,1.8X3.2MM"
2001-000786	"R117,R151"	2	R-CARBON	"47KOHM,5%,1/8W,AA,TP,1.8X3.2MM"
2001-000786	"R2,R10,R14,R53,R114"	5	R-CARBON	"47KOHM,5%,1/8W,AA,TP,1.8X3.2MM"
2001-000793	J34	1	R-CARBON	"47OHM,5%,1/8W,AA,TP,1.8X3.2MM"
2001-000812	"R158,R501,R512"	3	R-CARBON	"5.6KOHM,5%,1/8W,AA,TP,1.8X3.2MM"
2001-000812	"R45,R62,R63,R144,R170"	5	R-CARBON	"5.6KOHM,5%,1/8W,AA,TP,1.8X3.2MM"
2001-000832	"R112,R176"	2	R-CARBON	"510OHM,5%,1/8W,AA,TP,1.8X3.2MM"
2001-000832	"R51,R52,R64,R84"	4	R-CARBON	"510OHM,5%,1/8W,AA,TP,1.8X3.2MM"
2001-000864	R150	1	R-CARBON	"56KOHM,5%,1/8W,AA,TP,1.8X3.2MM"
2001-000935	R502	1	R-CARBON	"68OHM,5%,1/4W,AA,TP,2.4X6.4MM"
2001-001093	R510	1	R-CARBON(S)	"2.2KOHM,5%,1/2W,AA,TP,2.4X6.4MM"
2001-001145	"R131,R132,R147,R173,R186"	5	R-CARBON(S)	"4.7MOHM,5%,1/2W,AA,TP,2.4X6.4MM"
2001-001165	"R98,R99"	2	R-CARBON(S)	"56OHM,5%,1/2W,AA,TP,2.4X6.4MM"
2001-001252	"R136,R152,R153,R160,R161"	5	R-CARBON(S)	"2MOHM,5%,1/2W,AA,TP,2.4X6.4MM"
2001-001408	"R115,R123,R124"	3	R-CARBON(S)	"3.3MOHM,5%,1/2W,AA,TP,2.4X6.4MM"
2003-000005	R149	1	R-METAL OXIDE(S)	"1ohm,5%,2W,AA,TP,4x12mm"
2003-002116	"R7,R8"	2	R-METAL OXIDE(S)	"0.68ohm,5%,3W,AA,TP,15x5.5mm"
2003-002166	R28	1	R-METAL OXIDE(S)	"100OHM,5%,1W,AA,TP,2.4X6.4MM"
2004-000002	"R31,R34"	2	R-METAL	"78.7Kohm,1%,1/8W,AA,TP,1.8x3.2"
2004-000003	R57	1	R-METAL	"16.2Kohm,1%,1/8W,AA,TP,1.8x3.2"
2004-000269	R23	1	R-METAL	"120ohm,1%,1/8W,AA,TP,1.8x3.2mm"
2004-000342	R65	1	R-METAL	"158Kohm,1%,1/8W,AA,TP,1.8x3.2m"
2004-000345	R54	1	R-METAL	"15Kohm,1%,1/8W,AA,TP,1.8x3.2mm"
2004-000385	R6	1	R-METAL	"17.4Kohm,1%,1/8W,AA,TP,1.8x3.2"
2004-000433	R168	1	R-METAL	"1Kohm,1%,1/8W,AA,TP,1.8x3.2mm"
2004-000544	R17	1	R-METAL	"21.5Kohm,1%,1/8W,AA,TP,1.8x3.2"
2004-000581	R70	1	R-METAL	"22Kohm,1%,1/8W,AA,TP,1.8x3.2mm"
2004-000658	R67	1	R-METAL	"27Kohm,1%,1/8W,AA,TP,1.8x3.2mm"
2004-000699	"R137,R172"	2	R-METAL	"3.3Kohm,1%,1/8W,AA,TP,1.8x3.2m"
2004-000754	R106	1	R-METAL	"309Kohm,1%,1/8W,AA,TP,1.8x3.2m"
2004-000884	R171	1	R-METAL	"4.3Kohm,1%,1/8W,AA,TP,1.8x3.2m"
2004-000900	R169	1	R-METAL	"4.7Kohm,1%,1/8W,AA,TP,1.8x3.2m"
2004-000965	R18	1	R-METAL	"470Kohm,1%,1/8W,AA,TP,1.8x3.2m"
2004-001023	R36	1	R-METAL	"5.6Kohm,1%,1/8W,AA,TP,1.8x3.2m"
2004-001052	R44	1	R-METAL	"510ohm,1%,1/8W,AA,TP,1.8x3.2mm"
2004-001156	R3	1	R-METAL	"619Kohm,1%,1/8W,AA,TP,1.8x3.2m"
2004-001231	"R5,R12,R55"	3	R-METAL	"75Kohm,1%,1/8W,AA,TP,1.8x3.2mm"
2004-001315	R66	1	R-METAL	"86.6Kohm,1%,1/8W,AA,TP,1.8x3.2"
2004-001330	R69	1	R-METAL	"9.1Kohm,1%,1/8W,AA,TP,1.8x3.2m"
2004-001357	R68	1	R-METAL	"93.1Kohm,1%,1/8W,AA,TP,1.8x3.2"
2004-002001	"R11,R13"	2	R-METAL	"12.1Kohm,1%,1/8W,AA,TP,1.8x3.2"
2004-004234	"R4,R35"	2	R-METAL	"56.2Kohm,1%,1/8W,AA,TP,1.8x3.2"
2008-001125	J125	1	R-FUSIBLE	"1ohm,5%,1/2W,AA,TP,2.4x6mm"
2009-001082	R148	1	R-METAL GLAZE	"30Mohm,2%,2W,-,BK,30x8.5mm"
2009-001083	R174	1	R-METAL GLAZE	"200Mohm,2%,1/2W,CM,BK,18x6mm"
2009-001084	R118	1	R-METAL GLAZE	"30Mohm,2%,0.5W,CM,BK,18x6mm"
2009-001085	R128	1	R-METAL GLAZE	"10Mohm,3%,1/2W,CM,BK,18x4mm"
2103-000156	VR2	1	VR-SEMI	"10Kohm,10%,1/2W,TOP"
2103-000270	"VR1,VR3"	2	VR-SEMI	"20Kohm,10%,1/2W,TOP"
2201-000003	"C50,C58"	2	"C-CERAMIC,DISC"	"0.068nF,10%,2kV,SL,TP,7x5.5"

Main Engine PBA

SEC CODE	LOCATION NO.	Q'ty	DESCRIPTION	
2201-000004	C70	1	"C-CERAMIC,DISC"	"0.1nF,10%,2kV,SL,TP,8x5,5"
2201-000017	"C105,C108"	2	"C-CERAMIC,DISC"	"1nF,10%,50V,Y5P,TP,5x3.5,5"
2201-000017	"C48,C73,C74,C78,C93"	5	"C-CERAMIC,DISC"	"1nF,10%,50V,Y5P,TP,5x3.5,5"
2201-000017	"C7,C36,C37,C39,C42"	5	"C-CERAMIC,DISC"	"1nF,10%,50V,Y5P,TP,5x3.5,5"
2201-000017	"C94,C101,C102,C103"	4	"C-CERAMIC,DISC"	"1nF,10%,50V,Y5P,TP,5x3.5,5"
2201-000019	"C53,C100"	2	"C-CERAMIC,DISC"	"10nF,+80-20%,500V,Y5V,TP,13.5x4mm,5"
2201-000119	"C10,C11,C21,C31,C32"	5	"C-CERAMIC,DISC"	"100nF,+80-20%,50V,Y5V,TP,8x3,5"
2201-000119	"C35,C38,C41,C43,C47"	5	"C-CERAMIC,DISC"	"100nF,+80-20%,50V,Y5V,TP,8x3,5"
2201-000119	"C49,C60,C66,C72,C75"	5	"C-CERAMIC,DISC"	"100nF,+80-20%,50V,Y5V,TP,8x3,5"
2201-000119	"C501,C503,C504,C505"	4	"C-CERAMIC,DISC"	"100nF,+80-20%,50V,Y5V,TP,8x3,5"
2201-000119	"C81,C85,C88,C90,C107"	5	"C-CERAMIC,DISC"	"100nF,+80-20%,50V,Y5V,TP,8x3,5"
2201-000138	"C27,C28,C83"	3	"C-CERAMIC,DISC"	"100pF,10%,50V,Y5P,TP,4.0X4.0,2"
2201-000138	"C91,C95,C104"	3	"C-CERAMIC,DISC"	"100pF,10%,50V,Y5P,TP,4.0X4.0,2"
2201-000177	"C15,C16,C17,C18"	4	"C-CERAMIC,DISC"	"10nF,10%,50V,Y5P,TP,12x3.5,5"
2201-000177	"C22,C23,C24,C25,C26"	5	"C-CERAMIC,DISC"	"10nF,10%,50V,Y5P,TP,12x3.5,5"
2201-000177	"C40,C45,C46,C51,C86"	5	"C-CERAMIC,DISC"	"10nF,10%,50V,Y5P,TP,12x3.5,5"
2201-000177	"C87,C96"	2	"C-CERAMIC,DISC"	"10nF,10%,50V,Y5P,TP,12x3.5,5"
2201-000215	C20	1	"C-CERAMIC,DISC"	"0.12nF,5%,50V,NP0,TP,8.5x3,5"
2201-000326	"C3,C4,C19,C29,C30"	5	"C-CERAMIC,DISC"	"2.2nF,10%,50V,Y5P,TP,7x3,5"
2201-000391	"C33,C34,C79,C80"	4	"C-CERAMIC,DISC"	"0.022nF,5%,50V,SL,TP,5x3,5"
2201-000469	"C1,C6"	2	"C-CERAMIC,DISC"	"0.33nF,10%,500V,Y5P,TP,5.5x3,5"
2201-000473	"C8,C59,C61,C67,C68"	5	"C-CERAMIC,DISC"	"33nF,+80-20%,50V,Y5V,TP,5x4,5"
2201-000558	"C5,C12,C13"	3	"C-CERAMIC,DISC"	"0.47nF,10%,50V,Y5P,TP,5x3,5"
2201-000724	"C52,C57,C62,C63,C69"	5	"C-CERAMIC,DISC"	"470pF,0.1,3KV,Y5P,TP,8x5,5"
2201-002066	"C71,C76,C84,C92"	4	"C-CERAMIC,DISC"	"470pF,10%,6KV,Y5P,TP,10x7,10"
2201-002067	C77	1	"C-CERAMIC,DISC"	"100pF,10%,6KV,Y5P,TP,8x7,10"
2202-000109	"C65,C99,C502"	3	"C-CERAMIC,MLC-AXIAL"	"100NF,+80-20%,50V,Y5V,TP,1.9X3.5MM,-"
2202-000173	"C97,C98"	2	"C-CERAMIC,MLC-AXIAL"	"1nF,10%,50V,Y5P,TP,1.9x3.5,-"
2401-001240	"C82,C89"	2	C-AL	"4.7uF,20%,25V,GP,TP,4x7mm,1.5m"
2401-001553	"C14,C44,C106"	3	C-AL	"47uF,20%,35V,GP,TP,6.3x7mm,2.5"
2401-002300	"C2,C9,C506,C507"	4	C-AL	"47uF,20%,50V,GP,TP,6.3x11,5"
2801-000140	X1	1	CRYSTAL-UNIT	"12MHz,50ppm,28-AAM,S,30ohm,-"
2801-003990	X2	1	CRYSTAL-UNIT	"2.983307MHz,50ppm,28-AAM,18pF,600ohm,BK"
3301-000344	"FB1,FB2,FB3,FB4,FB5"	5	CORE-FERRITE BEAD	"AA,-,3.5x0.6x6.5mm,-,-,Mn-Zn,-"
3301-000344	"FB6,FB7,FB8"	3	CORE-FERRITE BEAD	"AA,-,3.5x0.6x6.5mm,-,-,Mn-Zn,-"
3301-001015	"B1,B2,B3,J236"	4	CORE-FERRITE BEAD	"AA,70ohm,3.6x0.65x5mm,7000mA,TP,FERRITE,0.01ohm"
3405-000125	SW1	1	SWITCH-MICRO	"125V,5A,50gf,SPDT"
3704-000235	U9	1	SOCKET-IC	"28P,DIP,SN,2.54mm"
3711-000164	CN8	1	CONNECTOR-HEADER	"1WALL,2P,1R,2.5mm,STRAIGHT,SN"
3711-000434	"CN3,CN504"	2	CONNECTOR-HEADER	"3WALL,2P,1R,2.5mm,STRAIGHT,SN"
3711-000470	"CN4,CN7"	2	CONNECTOR-HEADER	"3WALL,4P,1R,2mm,STRAIGHT,SN"
3711-000904	CN506	1	CONNECTOR-HEADER	"BOX,3P,1R,2.5mm,STRAIGHT,SN"
3711-001040	CN1	1	CONNECTOR-HEADER	"3WALL,6P,1R,2.5mm,STRAIGHT,SN"
3711-001108	CN503	1	CONNECTOR-HEADER	"BOX,8P,1R,2mm,STRAIGHT,SN"
3711-002000	CN9	1	CONNECTOR-HEADER	"BOX,18P,2R,2mm,STRAIGHT,SN"
3711-002001	"CN6,CN501"	2	CONNECTOR-HEADER	"-,20P,2R,2mm,STRAIGHT,SN"
3711-003823	CN5	1	CONNECTOR-HEADER	"BOX,16P,2R,2.5mm,STRAIGHT,SN"
3711-003968	"CN2,CN505"	2	CONNECTOR-HEADER	"BOX,3P,1R,2.5mm,STRAIGHT,SN"
3711-003969	CN502	1	CONNECTOR-HEADER	"BOX,2P,1R,2.5mm,STRAIGHT,SN"
3711-003981	CN10	1	CONNECTOR-HEADER	"BOX,28P,2R,2mm,STRAIGHT,SN"
JC26-20301B	"T1,T2,T4"	3	TRANS AF-	"ML-80,-,95MH"
JC26-30506A	T3	1	TRANS POWER-THV	"ML-7000,-,57.5/1.3uH,180mH"
JC33-10501B	L1	1	SOLENOID-6000	"ML-6000,24VDC,72W,57,39X39X22,"
JC39-40511A	"B4,B5,B6,B7,B8"	5	CBF HARNESS-	"ML-80,JUMPER,AWG22,52mm,SILVER"
JC39-40511A	"J1,J2,J5,J6,J7"	5	CBF HARNESS-	"ML-80,JUMPER,AWG22,52mm,SILVER"
JC39-40511A	"J101,J102,J103,J104,J105"	5	CBF HARNESS-	"ML-80,JUMPER,AWG22,52mm,SILVER"
JC39-40511A	"J106,J107,J108,J109,J110"	5	CBF HARNESS-	"ML-80,JUMPER,AWG22,52mm,SILVER"
JC39-40511A	"J111,J112,J113,J114,J115"	5	CBF HARNESS-	"ML-80,JUMPER,AWG22,52mm,SILVER"
JC39-40511A	"J116,J117,J118,J119,J120"	5	CBF HARNESS-	"ML-80,JUMPER,AWG22,52mm,SILVER"
JC39-40511A	"J121,J123,J124"	3	CBF HARNESS-	"ML-80,JUMPER,AWG22,52mm,SILVER"

Main Engine PBA

SEC CODE	LOCATION NO.	Q'ty	DESCRIPTION	
JC39-40511A	"J126,J127,J128,J129,J130"	5	CBF HARNESS-	"ML-80,JUMPER,AWG22,52mm,SILVER"
JC39-40511A	"J131,J132,J133,J134,J135"	5	CBF HARNESS-	"ML-80,JUMPER,AWG22,52mm,SILVER"
JC39-40511A	"J136,J137,J138,J139,J140"	5	CBF HARNESS-	"ML-80,JUMPER,AWG22,52mm,SILVER"
JC39-40511A	"J141,J142,J143,J144,J145"	5	CBF HARNESS-	"ML-80,JUMPER,AWG22,52mm,SILVER"
JC39-40511A	"J146,J147,J148,J149,J150"	5	CBF HARNESS-	"ML-80,JUMPER,AWG22,52mm,SILVER"
JC39-40511A	"J15,J16,J18,J19,J20"	5	CBF HARNESS-	"ML-80,JUMPER,AWG22,52mm,SILVER"
JC39-40511A	"J151,J152,J153,J154,J155"	5	CBF HARNESS-	"ML-80,JUMPER,AWG22,52mm,SILVER"
JC39-40511A	"J159,J160,J161,J162,J163"	5	CBF HARNESS-	"ML-80,JUMPER,AWG22,52mm,SILVER"
JC39-40511A	"J164,J165,J166,J167,J169"	5	CBF HARNESS-	"ML-80,JUMPER,AWG22,52mm,SILVER"
JC39-40511A	"J170,J171,J172,J173,J175"	5	CBF HARNESS-	"ML-80,JUMPER,AWG22,52mm,SILVER"
JC39-40511A	"J178,J181,J182,J184"	4	CBF HARNESS-	"ML-80,JUMPER,AWG22,52mm,SILVER"
JC39-40511A	"J186,J187,J188,J189,J192"	5	CBF HARNESS-	"ML-80,JUMPER,AWG22,52mm,SILVER"
JC39-40511A	"J193,J194,J195,J196,J198"	5	CBF HARNESS-	"ML-80,JUMPER,AWG22,52mm,SILVER"
JC39-40511A	"J199,J200,J201,J202,J204"	5	CBF HARNESS-	"ML-80,JUMPER,AWG22,52mm,SILVER"
JC39-40511A	"J205,J207,J208,J209,J210"	5	CBF HARNESS-	"ML-80,JUMPER,AWG22,52mm,SILVER"
JC39-40511A	"J21,J22,J23,J24,J25"	5	CBF HARNESS-	"ML-80,JUMPER,AWG22,52mm,SILVER"
JC39-40511A	"J211,J212,J214,J216,J217"	5	CBF HARNESS-	"ML-80,JUMPER,AWG22,52mm,SILVER"
JC39-40511A	"J218,J219,J220,J221,J222"	5	CBF HARNESS-	"ML-80,JUMPER,AWG22,52mm,SILVER"
JC39-40511A	"J223,J224,J225,J226,J227"	5	CBF HARNESS-	"ML-80,JUMPER,AWG22,52mm,SILVER"
JC39-40511A	"J229,J230,J231,J232,J233"	5	CBF HARNESS-	"ML-80,JUMPER,AWG22,52mm,SILVER"
JC39-40511A	"J234,J235,J237,J238"	4	CBF HARNESS-	"ML-80,JUMPER,AWG22,52mm,SILVER"
JC39-40511A	"J239,J240,J241,J242,J243"	5	CBF HARNESS-	"ML-80,JUMPER,AWG22,52mm,SILVER"
JC39-40511A	"J244,J245,J246,J247,J248"	5	CBF HARNESS-	"ML-80,JUMPER,AWG22,52mm,SILVER"
JC39-40511A	"J249,J250,J251,J252,J253"	5	CBF HARNESS-	"ML-80,JUMPER,AWG22,52mm,SILVER"
JC39-40511A	"J254,J501,J502,J503,J504"	5	CBF HARNESS-	"ML-80,JUMPER,AWG22,52mm,SILVER"
JC39-40511A	"J26,J27,J28,J29,J30"	5	CBF HARNESS-	"ML-80,JUMPER,AWG22,52mm,SILVER"
JC39-40511A	"J31,J32,J33,J35,J36"	5	CBF HARNESS-	"ML-80,JUMPER,AWG22,52mm,SILVER"
JC39-40511A	"J37,J38,J39,J40,J41"	5	CBF HARNESS-	"ML-80,JUMPER,AWG22,52mm,SILVER"
JC39-40511A	"J42,J43,J44,J46"	4	CBF HARNESS-	"ML-80,JUMPER,AWG22,52mm,SILVER"
JC39-40511A	"J47,J48,J49,J50,J51"	5	CBF HARNESS-	"ML-80,JUMPER,AWG22,52mm,SILVER"
JC39-40511A	"J505,J506,J507,J508,J509"	5	CBF HARNESS-	"ML-80,JUMPER,AWG22,52mm,SILVER"
JC39-40511A	"J510,J511,J512,J513,J514"	5	CBF HARNESS-	"ML-80,JUMPER,AWG22,52mm,SILVER"
JC39-40511A	"J515,J516,J518,J519"	4	CBF HARNESS-	"ML-80,JUMPER,AWG22,52mm,SILVER"
JC39-40511A	"J52,J53,J54,J55,J56"	5	CBF HARNESS-	"ML-80,JUMPER,AWG22,52mm,SILVER"
JC39-40511A	"J57,J58,J59,J60,J61"	5	CBF HARNESS-	"ML-80,JUMPER,AWG22,52mm,SILVER"
JC39-40511A	"J62,J63,J64,J65,J66"	5	CBF HARNESS-	"ML-80,JUMPER,AWG22,52mm,SILVER"
JC39-40511A	"J67,J68,J69,J70,J71"	5	CBF HARNESS-	"ML-80,JUMPER,AWG22,52mm,SILVER"
JC39-40511A	"J72,J73,J74,J75,J76"	5	CBF HARNESS-	"ML-80,JUMPER,AWG22,52mm,SILVER"
JC39-40511A	"J78,J79,J80,J81"	4	CBF HARNESS-	"ML-80,JUMPER,AWG22,52mm,SILVER"
JC39-40511A	"J8,J9,J12,J13,J14"	5	CBF HARNESS-	"ML-80,JUMPER,AWG22,52mm,SILVER"
JC39-40511A	"J82,J83,J84,J85,J86"	5	CBF HARNESS-	"ML-80,JUMPER,AWG22,52mm,SILVER"
JC39-40511A	"J87,J88,J89,J90,J91"	5	CBF HARNESS-	"ML-80,JUMPER,AWG22,52mm,SILVER"
JC39-40511A	"J92,J93,J94,J95,J96"	5	CBF HARNESS-	"ML-80,JUMPER,AWG22,52mm,SILVER"
JC39-40511A	"J97,J98,J99,J100"	4	CBF HARNESS-	"ML-80,JUMPER,AWG22,52mm,SILVER"
JC39-40511A	"JS1,JS4,JS5"	3	CBF HARNESS-	"ML-80,JUMPER,AWG22,52mm,SILVER"
JC39-40511A	"R83,R185,R503"	3	CBF HARNESS-	"ML-80,JUMPER,AWG22,52mm,SILVER"
JC41-00043A		1	PCB-ENGINE	"ML-7300,FR-1,1L,1.6T,289x247mm"
JC70-10909A	"TP1,TP2,TP3,TP4,TP5"	5	IPR-CONNECTOR HV	"ML-80,AL,T0.8,-"
JC96-01379A	"Q14,Q15"	1	ELA HOU-H/SINK	"ML-7000/NEC,NEC,USA,HEAT-SINK,ENGINE B'D,"
JC96-01944A		1	ELA UNIT-HEAT-SINK (526L)	"ML-5000A,SAMSUNG,KOREA,-,-,-,-"
0502-001124	Q203	1	TR-POWER	"KSD526,NPN,30W,TO-220,BK,120-2"
6003-000119		1	SCREW-TAPTITE	"BH,+,B,M3,L8,CBLACK,SWRCH18A"
JC62-30001A	HS202	1	HEAT SINK-TRANS	"ML-80,AL,-"
JC96-01945A		1	ELA UNIT-HEAT-SINK (526S)	"ML-5000A,SAMSUNG,KOREA,-,-,-,-"
0502-001124	Q201	1	TR-POWER	"KSD526,NPN,30W,TO-220,BK,120-2"
6003-000269		1	SCREW-TAPTITE	"BH,+,S,M3,L6,ZPC(YEL),SWRCH18A"
JF62-30201A	HS201	1	HEAT SINK	"HVPS,SPCC,t1.0"
JF68-30527N	U9	1	LABEL(R)-BAR CODE	"SF500,PY,20X10,T0.1,WHT"

7-2. Main Controller PBA

SEC CODE	LOCATION NO.	Q'ty	DESCRIPTION
JC92-01282A			PBA MAIN-CONTROLLER
0801-001072	"U6,U7,U35"	3	IC-CMOS LOGIC "74ACT32,OR GATE,SOP,14P,150MIL"
0803-000103	U34	1	IC-TTL "74F08,AND GATE,SOP,14P,150MIL,"
0803-000116	"U38,U39"	2	IC-TTL "74F157,MUTIPLEXER,SOP,16P,150M"
0803-000118	"U31,U32"	2	IC-TTL "74F14,INVERTER,SOP,14P,150MIL,"
0803-000272	U8	1	IC-TTL "74F04,INVERTER,SOP,14P,150MIL,"
0803-000303	U21	1	IC-TTL "74F74,D FLIP-FLOP,SOP,14P,150M"
0803-001381	"U4,U11"	2	IC-TTL "74F273,D FLIP-FLOP,SOP,20P,300"
0803-003058	U9	1	IC-TTL "74F1071,ESD,SOP,20P,-,-,TP,PLA"
1006-000243	"U10,U12"	2	IC-LINE TRANSCEIVER"74ACT245,SOP,20P,-,OCTAL,ST,PL"
1103-000133	U1	1	IC-EEPROM "93C66,256x16BIT,SOP,8P,150MIL,"
1105-001252	"U18,U24"	2	IC-DRAM"416C4104,4MX16BIT,TSOP,50P,400MIL,50NS,5V,10%, PLASTIC,0TO+70C,2MA,CMOS,ST"
1107-001121	"U3,U13"	2	IC-FLASH MEMORY"29F800,1Mx8/512Kx16Bit,TSOP,48P,787MIL, 70nS,5V,10%,PLASTIC,0to+70C,100uA,CMOS,ST"
1203-000496	U36	1	IC-VOL. SUPERVISORY"7705,SOP,8P,150MIL,PLASTIC,20V"
1203-001026	"U16,U17"	2	IC-POS.FIXED REG."33269,DPAK,3P,265MIL,PLASTIC,3.3/3.33V40TO+150C,
2007-000029	"R130,R147"	2	R-CHIP "00HM,5%,1/10W,DA,TP,2012"
2007-000029	"R14,R31,R156,R157,R201,R242"	6	R-CHIP "00HM,5%,1/10W,DA,TP,2012"
2007-000290	"R132,R142,R143,R144,R153"	5	R-CHIP "100OHM,5%,1/10W,DA,TP,2012"
2007-000290	"R154,R155,R159,R161,R162"	5	R-CHIP "100OHM,5%,1/10W,DA,TP,2012"
2007-000290	"R163,R178,R179,R180,R181"	5	R-CHIP "100OHM,5%,1/10W,DA,TP,2012"
2007-000290	"R17,R59,R77,R86,R95,"	5	R-CHIP "100OHM,5%,1/10W,DA,TP,2012"
2007-000290	"R187,R221,R222,R224,R225"	5	R-CHIP "100OHM,5%,1/10W,DA,TP,2012"
2007-000290	"R226,R15,R27,R32"	4	R-CHIP "100OHM,5%,1/10W,DA,TP,2012"
2007-000300	"R1,R4,R5,R6,R7,R8"	6	R-CHIP "10KOHM,5%,1/10W,DA,TP,2012"
2007-000300	"R100,R101,R106,R108,R109"	5	R-CHIP "10KOHM,5%,1/10W,DA,TP,2012"
2007-000300	"R110,R111,R118,R120,R122"	5	R-CHIP "10KOHM,5%,1/10W,DA,TP,2012"
2007-000300	"R123,R124,R125,R127,R128"	5	R-CHIP "10KOHM,5%,1/10W,DA,TP,2012"
2007-000300	"R133,R136,R139,R140,R149"	5	R-CHIP "10KOHM,5%,1/10W,DA,TP,2012"
2007-000300	"R150,R151,R158,R166,R167"	5	R-CHIP "10KOHM,5%,1/10W,DA,TP,2012"
2007-000300	"R168,R169,R170,R176,R200"	5	R-CHIP "10KOHM,5%,1/10W,DA,TP,2012"
2007-000300	"R2,R13,R16,R28,R33"	5	R-CHIP "10KOHM,5%,1/10W,DA,TP,2012"
2007-000300	"R210,R213,R214,R215,R216"	5	R-CHIP "10KOHM,5%,1/10W,DA,TP,2012"
2007-000300	"R217,R218,R219,R227,R228"	5	R-CHIP "10KOHM,5%,1/10W,DA,TP,2012"
2007-000300	"R229,R230,R241"	3	R-CHIP "10KOHM,5%,1/10W,DA,TP,2012"
2007-000300	"R46,R58,R60,R64,R67"	5	R-CHIP "10KOHM,5%,1/10W,DA,TP,2012"
2007-000300	"R68,R69,R70,R71,R72"	5	R-CHIP "10KOHM,5%,1/10W,DA,TP,2012"
2007-000300	"R73,R74,R80,R81,R82"	5	R-CHIP "10KOHM,5%,1/10W,DA,TP,2012"
2007-000300	"R83,R85,R89,R90,R91"	5	R-CHIP "10KOHM,5%,1/10W,DA,TP,2012"
2007-000300	"R9,R10,R11,R36,R45"	5	R-CHIP "10KOHM,5%,1/10W,DA,TP,2012"
2007-000300	"R92,R93,R94,R98,R99"	5	R-CHIP "10KOHM,5%,1/10W,DA,TP,2012"
2007-000308	"R131,R174,R175,R184,R185"	5	R-CHIP "10OHM,5%,1/10W,DA,TP,2012"
2007-000308	"R188,R189,R190,R191,R196"	5	R-CHIP "10OHM,5%,1/10W,DA,TP,2012"
2007-000308	"R197,R198,R199"	3	R-CHIP "10OHM,5%,1/10W,DA,TP,2012"
2007-000312	"R62,R129"	2	R-CHIP "10OHM,5%,1/8W,DA,TP,3216"
2007-000449	R134	1	R-CHIP "180OHM,5%,1/10W,DA,TP,2012"
2007-000468	"R18,R19,R20,R21,R22,R23"	6	R-CHIP "1KOHM,5%,1/10W,DA,TP,2012"
2007-000468	"R24,R25,R26,R34,R35,R42"	6	R-CHIP "1KOHM,5%,1/10W,DA,TP,2012"
2007-000468	"R43,R44,R138,R202,R236,R237"	6	R-CHIP "1KOHM,5%,1/10W,DA,TP,2012"
2007-000493	R145	1	R-CHIP "2.2KOHM,5%,1/10W,DA,TP,2012"
2007-000781	"R104,R105,R107,R114,R115,R116"	6	R-CHIP "33OHM,5%,1/10W,DA,TP,2012"
2007-000781	"R117,R119,R121,R126,R137,R141"	6	R-CHIP "33OHM,5%,1/10W,DA,TP,2012"
2007-000781	"R12,R37,R38,R39,R40,R47"	6	R-CHIP "33OHM,5%,1/10W,DA,TP,2012"

Main Controller PBA

SEC CODE	LOCATION NO.	Q'ty	DESCRIPTION	
2007-000781	"R146,R148,R171,R172,R177"	5	R-CHIP	"330HM,5%,1/10W,DA,TP,2012"
2007-000781	"R192,R193,R194,R195"	4	R-CHIP	"330HM,5%,1/10W,DA,TP,2012"
2007-000781	"R48,R53,R54,R55,R56,R61"	6	R-CHIP	"330HM,5%,1/10W,DA,TP,2012"
2007-000781	"R63,R65,R66,R75,R76,R78"	6	R-CHIP	"330HM,5%,1/10W,DA,TP,2012"
2007-000781	"R79,R87,R88,R96,R97,R103"	6	R-CHIP	"330HM,5%,1/10W,DA,TP,2012"
2007-000931	R212	1	R-CHIP	"470OHM,5%,1/10W,DA,TP,2012"
2007-000964	"R41,R49,R50,R51,R52,R220"	6	R-CHIP	"5.1KOHM,5%,1/10W,DA,TP,2012"
2007-001133	"R84,R152,R160,R173,R182"	5	R-CHIP	"68OHM,5%,1/10W,DA,TP,2012"
2011-001094	"RA1,RA2,RA3,RA4,RA5,RA6"	6	R-NETWORK	"39ohm,5%,63mW,L,CHIP,8P,TP"
2011-001094	"RA13,RA14,RA15,RA16"	4	R-NETWORK	"39ohm,5%,63mW,L,CHIP,8P,TP"
2011-001094	"RA7,RA8,RA9,RA10,RA11,RA12"	6	R-NETWORK	"39ohm,5%,63mW,L,CHIP,8P,TP"
2203-000192	"C1,C19,C20,C29,C34,C35"	6	"C-CERAMIC,CHIP"	"100nF,+80-20%,50V,Y5V,TP,2012,"
2203-000192	"C102,C103,C104,C105,C106,C107"	6	"C-CERAMIC,CHIP"	"100nF,+80-20%,50V,Y5V,TP,2012,"
2203-000192	"C108,C109,C111,C119,C120,C121"	6	"C-CERAMIC,CHIP"	"100nF,+80-20%,50V,Y5V,TP,2012,"
2203-000192	"C122,C123,C124,C125,C126,C129"	6	"C-CERAMIC,CHIP"	"100nF,+80-20%,50V,Y5V,TP,2012,"
2203-000192	"C132,C133,C138,C139,C140,C141"	6	"C-CERAMIC,CHIP"	"100nF,+80-20%,50V,Y5V,TP,2012,"
2203-000192	"C142,C144,C147,C148,C151,C157"	6	"C-CERAMIC,CHIP"	"100nF,+80-20%,50V,Y5V,TP,2012,"
2203-000192	"C158,C159,C160,C161,C162,C163"	6	"C-CERAMIC,CHIP"	"100nF,+80-20%,50V,Y5V,TP,2012,"
2203-000192	"C164,C167,C169,C171,C173,C174"	6	"C-CERAMIC,CHIP"	"100nF,+80-20%,50V,Y5V,TP,2012,"
2203-000192	"C175,C176,C177,C178,C179,C180"	6	"C-CERAMIC,CHIP"	"100nF,+80-20%,50V,Y5V,TP,2012,"
2203-000192	"C181,C183,C184,C185,C188,C189"	6	"C-CERAMIC,CHIP"	"100nF,+80-20%,50V,Y5V,TP,2012,"
2203-000192	"C190,C191,C192,C193,C196,C197"	6	"C-CERAMIC,CHIP"	"100nF,+80-20%,50V,Y5V,TP,2012,"
2203-000192	"C203,C212,C213,C13,C17,C59,C115"	7	"C-CERAMIC,CHIP"	"100nF,+80-20%,50V,Y5V,TP,2012,"
2203-000192	"C235,C236,C237,C238"	4	"C-CERAMIC,CHIP"	"100nF,+80-20%,50V,Y5V,TP,2012,"
2203-000192	"C36,C40,C41,C43,C44,C45"	6	"C-CERAMIC,CHIP"	"100nF,+80-20%,50V,Y5V,TP,2012,"
2203-000192	"C46,C48,C49,C62,C63,C64"	6	"C-CERAMIC,CHIP"	"100nF,+80-20%,50V,Y5V,TP,2012,"
2203-000192	"C65,C66,C67,C68,C69,C70"	6	"C-CERAMIC,CHIP"	"100nF,+80-20%,50V,Y5V,TP,2012,"
2203-000192	"C71,C72,C74,C75,C76,C80"	6	"C-CERAMIC,CHIP"	"100nF,+80-20%,50V,Y5V,TP,2012,"
2203-000192	"C82,C84,C85,C86,C87,C88"	6	"C-CERAMIC,CHIP"	"100nF,+80-20%,50V,Y5V,TP,2012,"
2203-000192	"C89,C90,C91,C92,C94,C95"	6	"C-CERAMIC,CHIP"	"100nF,+80-20%,50V,Y5V,TP,2012,"
2203-000192	"C96,C97,C98,C99,C100,C101"	6	"C-CERAMIC,CHIP"	"100nF,+80-20%,50V,Y5V,TP,2012,"
2203-000239	"C150,C187,C38,C39,C51,C52"	6	"C-CERAMIC,CHIP"	"0.1nF,5%,50V,NP0,TP,2012"
2203-000239	"C154,C170,C186,C194,C209"	5	"C-CERAMIC,CHIP"	"0.1nF,5%,50V,NP0,TP,2012"
2203-000239	"C228,C233,C234"	3	"C-CERAMIC,CHIP"	"0.1nF,5%,50V,NP0,TP,2012"
2203-000239	"C81,C118,C127,C152,C153"	5	"C-CERAMIC,CHIP"	"0.1nF,5%,50V,NP0,TP,2012"
2203-000274	"C77,C78,C79,C83,C93"	5	"C-CERAMIC,CHIP"	"0.01nF,0.25pF,50V,NP0,TP,2012"
2203-000389	"C113,C116,C137"	3	"C-CERAMIC,CHIP"	"0.015nF,5%,50V,NP0,TP,2012"
2203-000455	"C14,C15,C16,C31,C42,C198,C232"	7	"C-CERAMIC,CHIP"	"1nF,5%,50V,NP0,TP,2012"
2203-000455	"C2,C3,C4,C5,C6,C7,C8"	7	"C-CERAMIC,CHIP"	"1nF,5%,50V,NP0,TP,2012"
2203-000455	"C9,C10,C11,C12,C221,C222"	6	"C-CERAMIC,CHIP"	"1nF,5%,50V,NP0,TP,2012"
2203-000595	"C21,C22,C23,C24,C25,C26,C27,C28"	8	"C-CERAMIC,CHIP"	"0.22nF,5%,50V,NP0,TP,2012"
2203-000634	"C110,C112,C130,C136,C143"	5	"C-CERAMIC,CHIP"	"0.022nF,5%,50V,NP0,TP,2012"
2203-000661	C135	1	"C-CERAMIC,CHIP"	"0.27nF,5%,50V,NP0,TP,2012"
2203-000818	"C134,C149,C156,C166"	4	"C-CERAMIC,CHIP"	"0.033nF,5%,50V,NP0,TP,2012"
2203-000818	"C199,C200,C201,C202,C231"	5	"C-CERAMIC,CHIP"	"0.033nF,5%,50V,NP0,TP,2012"
2203-000938	"C216,C217,C219,C220,C223"	5	"C-CERAMIC,CHIP"	"0.47nF,5%,50V,NP0,TP,2012"
2203-000938	"C53,C54,C55,C56,C57,C58,C214"	7	"C-CERAMIC,CHIP"	"0.47nF,5%,50V,NP0,TP,2012"
2203-001158	C168	1	"C-CERAMIC,CHIP"	"0.068nF,5%,50V,NP0,TP,2012"
2404-000128	"C60,C131"	2	"C-TA,CHIP"	"10uF,20%,16V,-,TP,6032,-"
2404-000468	"C18,C50,C73,C114,C165"	5	"C-TA,CHIP"	"33uF,20%,16V,GP,TP,7343,-"
2404-000468	"C195,C210,C224"	3	"C-TA,CHIP"	"33uF,20%,16V,GP,TP,7343,-"
2804-000380	OSC2	1	OSCILLATOR-CLOCK	"50MHz,100ppm,10 TTL,-,5V,40mA"
2804-001387	OSC1	1	OSCILLATOR-CLOCK	"78.45496MHz,50ppm,15pF&10TTL,BK,5V,40mA"
2901-001178	"LF1,LF2,LF4,LF5,LF8,LF9"	6	FILTER-EMI SMD	"25V,2A,-,100000pF,2x1.25x1mm,TP"

Main Controller PBA

SEC CODE	LOCATION NO.	Q'ty	DESCRIPTION
2901-001178	"LF12,LF13,LF14,LF15,LF16"	5	FILTER-EMI SMD "25V,2A,-,100000pF,2x1.25x1mm,TP"
3301-000317	"B1,B2,B3,B4,B5,B6,B7,B8,"	8	CORE-FERRITE BEAD"AB,2x1.25x0.9mm,-,-"
3301-000317	"B9,B10,B11,B12,B13,B14,B15"	7	CORE-FERRITE BEAD"AB,2x1.25x0.9mm,-,-"
3301-000317	"L1,L2,L6"	3	CORE-FERRITE BEAD"AB,2x1.25x0.9mm,-,-"
3702-000118	J2	1	CONNECTOR-RIBBON"36P,FEMALE,ANGLE,AU"
3702-001090	CN2	1	CONNECTOR-RIBBON"60P,MALE,STRAIGHT,AUF"
3702-001104	J3	1	CONNECTOR-RIBBON"30P,FEMALE,STRAIGHT,AU"
3709-001027	"CN3,CN4,CN5"	3	CONNECTOR-CARD EDGE"72P,1.27mm,STRAIGHT,SN"
3711-002001	J1	1	CONNECTOR-HEADER"-,20P,2R,2mm,STRAIGHT,SN"
3711-003981	J4	1	CONNECTOR-HEADER"BOX,28P,2R,2mm,STRAIGHT,SN"
4701-001020	U23	1	FREQ-ATTENUATOR"5-80MHz,15dB,-,0.03W"
JC09-00001A	U19	1	IC MICRO COMPUTER-CPU "ML-6100,IBM25EMPPC603EPG-100,CQFP,240P,32X32MM"
JC11-10507A	U5	1	IC MASK ROM-HIGH"ML-165,KM23C8105DG,SOP,44P,600"
JC11-10510A	U14	1	"IC MASK ROM-PCL6,LOW""ml-165,KM23C8105DG,SOP,44P,600"
JC13-00002A	U27	1	IC-ASIC-SPGP1 "ML-7000,SPGP1,QFP,240P,34.6X4.15BSC"
JC13-00003A	U29	1	IC-ASIC-HYPER "ML-7000,SOP-9801A,PQFP,100P,20X14MM"
JC41-00044A	PCB	1	PCB-CONTROLLER"ML-7300,FR-4,4L,1.6T,180x210mm"
JF68-30527N	"U3,U13"	2	LABEL(R)-BAR CODE"SF500,PY,20X10,T0.1,WHT"

7-3. FLASH MEMORY PBA

SEC CODE	LOCATION NO.	Q'ty	DESCRIPTION
PBA MAIN-FLASH MEMORY			
JC94-01052A		1	PRA AUTO SMD "ML+7000XA,SEC,KOREA,POST SCRIPT SIMM,-,-,-"
0202-000108		0	SOLDER-CREAM "RMA-010 T-322,S63,-,-"
0801-001075	U5	1	IC-CMOS LOGIC "74ACT138,DEMUX,SOP,16P,150MIL,"
1107-001077	"U1,U2"	2	IC-FLASH MEMORY"29F800,512Kx16BIT,SOP,44P,512M"
2007-000029	"R1,R3,R8,R11"	4	R-CHIP "00HM,5%,1/10W,DA,TP,2012"
2007-000290	R4	1	R-CHIP "100OHM,5%,1/10W,DA,TP,2012"
2007-000300	"R7,R12,R13"	3	R-CHIP "10KOHM,5%,1/10W,DA,TP,2012"
2007-000781	R6	1	R-CHIP "33OHM,5%,1/10W,DA,TP,2012"
2203-000192	"C1,C2,C5"	3	"C-CERAMIC,CHIP" "100nF,+80-20%,50V,Y5V,TP,2012,"
JC41-10514A	PCB-FLASH SIMM	1	PCB-FLASH SIMM "ML-165,FR-4,4L,1.6T,102.87*35"

7-4. PTL PBA

SEC CODE	LOCATION NO.	Q'ty	DESCRIPTION
PBA SUB-PTL			
0601-001244	"LD1~LD10"	10	LED "ROUND,RED,3mm,690nm"
0601-001244	"LD11~LD18"	8	LED "ROUND,RED,3mm,690nm"
JC39-40531A	CN1	1	CBF HARNESS-PTL"ML-165,-,UL1061,170mm,RED/WHT,"
JC94-00981A		1	PRA AUTO-PTL "ML-165,-,-,217.7X9mm,-,-,-"
2001-000937	"R1,R2"	2	R-CARBON "68ohm,5%,1/8W,AA,TP,1.8x3.2mm"
JC41-10519A	PCB	1	PCB-PTL "ML-165,FR-1,1L,T1.6mm,217.7X9m"

7-5. CASSETTE PBA

SEC CODE	LOCATION NO.	Q'ty	DESCRIPTION
PBA SUB-CASSETTE			
3711-003205	CN1	1	CONNECTOR-HEADER"BOX,4P,1R,2.0mm,STRAIGHT,SN"
JC94-00986A		1	PRA AUTO-CASSETTE"ML-165,-,-,35.51x52.3mm,-,-,-"
3404-000116	"SW1,SW2,SW3"	3	SWITCH-TACT "12V,50mA,160gf,6X6X3.6mm,SPST"
JC41-10517A	PCB	1	PCB-CASSETTE "ML-165,FR-4,2L,1.6mm,35.51*52."

7-6. POSTSCRIPT PBA

SEC CODE	LOCATION NO.	Q'ty	DESCRIPTION
PBA ETC-POSTSCRIPT			
0801-001075	U5	1	IC-CMOS LOGIC "74ACT138,DEMUX,SOP,16P,150MIL,"
1107-001121	"U1,U2,U3,U4"	4	IC-FLASH MEMORY"29F800,1Mx8/512Kx16Bit,TSOP,48P,787MIL, 70nS,5V,10%,PLASTIC,0to+70C,100uA,CMOS,ST"
2007-000029	"R1,R3,R9,R10"	4	R-CHIP "00HM,5%,1/10W,DA,TP,2012"
2007-000290	"R4,R5"	2	R-CHIP "100OHM,5%,1/10W,DA,TP,2012"
2007-000300	"R7,R12,R13,R14,R15"	5	R-CHIP "10KOHM,5%,1/10W,DA,TP,2012"
2007-000781	R6	1	R-CHIP "33OHM,5%,1/10W,DA,TP,2012"
2203-000206	"C1,C2,C3,C4,C5"	5	"C-CERAMIC,CHIP" "100nF,10%,50V,X7R,TP,2012"
JC41-00048A	PS-3 PCB	1	PCB SUB-POSTSCRIPT"ML-6060,FR-4,4LAYER,1.6T,108x36mm"

7-7. DISP-PANEL PBA

SEC CODE	LOCATION NO.	Q'ty	DESCRIPTION
			PBA SUB DISP-PANEL
0601-000353	LED1	1	LED "ROUND,RED/Y-GRN,5mm,630/569nm"
3711-000595	CN1	1	CONNECTOR-HEADER"BOX,10P,1R,2mm,ANGLE,SN"
3711-000760	CN2	1	CONNECTOR-HEADER"BOX,20P,2R,2mm,ANGLE,SN"
JC94-00969A		1	PRA AUTO-PANEL "ML-165,SEC,USA,PCL6,-,-,-"
0501-000010	Q1	1	TR-SMALL SIGNAL "KSC1008,NPN,800mW,TO-92,TP,120"
2001-000111	R4	1	R-CARBON "150OHM,5%,1/4W,AA,TP,2.4X6.4MM"
2001-000281	"R3,R11"	2	R-CARBON "100OHM,5%,1/8W,AA,TP,1.8X3.2MM"
2001-000290	"R1,R2,R7"	3	R-CARBON "10KOHM,5%,1/8W,AA,TP,1.8X3.2MM"
2001-000323	R6	1	R-CARBON "120OHM,5%,1/4W,AA,TP,2.4X6.4MM"
2001-000832	R5	1	R-CARBON "510OHM,5%,1/8W,AA,TP,1.8X3.2MM"
2202-000002	"C2,C4,C5,C7"	4	"C-CERAMIC,MLC-AXIAL""10nF,0.05,500V,X7R,TP,5.1x6.4x"
2401-001476	C1	1	C-AL "47uF,20%,10V,GP,TP,6.3x5mm,2.5"
3404-000116	"SW1~SW8"	8	SWITCH-TACT "12V,50mA,160gf,6X6X3.6mm,SPST"
JC39-40511A	"JP1,JP2,JP3,JP4,JP5,JP6"	6	CBF HARNESS- "ML-80,JUMPER,AWG22,52mm,SILVER"
JC41-10511A		1	PCB-PANEL "ML-165,FR-1,1L,T1.6mm,77X75mm"

7-8. DISP-LCD PBA

SEC CODE	LOCATION NO.	Q'ty	DESCRIPTION
			PBA SUB DISP-LCD
3711-000595	CN10	1	CONNECTOR-HEADER"BOX,10P,1R,2mm,ANGLE,SN"
6003-000119	LCD MODULE	1	SCREW-TAPTITE "BH,+,B,M3,L8,CBLACK,SWRCH18A"
JC07-20501A	LCD1	1	DISPLAY LCD-MODULE"ML-165,PC0802LYS-AEB-B-R2,BLK/"
JC72-40265A		2	PMO-SPACE LCD "ML-80,ABS,-,HB,-"
JC94-00971A		1	PRA AUTO-LCD "ML-165,SEC,USA,PCL6,-,-,-"
2001-000290	R10	1	R-CARBON "10KOHM,5%,1/8W,AA,TP,1.8X3.2MM"
2202-000002	C6	1	"C-CERAMIC,MLC-AXIAL""10nF,0.05,500V,X7R,TP,5.1x6.4x"
JC41-10512A		1	PCB-PANEL LCD "ML-165,FR1,1L,T1.6mm,59.5X39mm"

7-9. TONER PBA

SEC CODE	LOCATION NO.	Q'ty	DESCRIPTION
			PBA SUB-TONER
0501-000399	Q1	1	TR-SMALL SIGNAL "KSC945-G,NPN,250mW,TO-92,TP,20"
0601-001276	LD1	1	LED-IR "ROUND,5,20,5,-,-"
0603-001025	CN1	1	PHOTO-TR "NPN,30V,4V,50mA,150mW,BK"
2001-000027	R1	1	R-CARBON "100OHM,5%,1/4W,AA,TP,2.4X6.4MM"
2001-000281	R3	1	R-CARBON "100OHM,5%,1/8W,AA,TP,1.8X3.2MM"
2001-000290	"R2,R4,R5"	3	R-CARBON "10KOHM,5%,1/8W,AA,TP,1.8X3.2MM"
2001-000734	R6	1	R-CARBON "4.7KOHM,5%,1/8W,AA,TP,1.8X3.2MM"
2201-000469	C1	1	"C-CERAMIC,DISC""330pF,10%,500V,Y5P,TP,6x4,5"
JC41-10520A		1	PCB-TONER "ML-165,FR-1,1L,T1.6mm,44*34.5m"
JC70-10999A	"5V,T,G"	3	IPR-ELECTRODE_PCB"ML-6000,C5201P-1/2H,T0.2,-"

7-10. NETWORK CARD PBA(100BASE)

SEC CODE	LOCATION NO.	Q'ty	DESCRIPTION
JC92-01119A			NETWORK CARD PBA(100BASE)
0601-000105	LED2	1	"LED;CBI-ANGLE,GRN,5mm,560nm"
0601-000105	LED1	1	"LED;CBI-ANGLE,GRN,5mm,560nm"
2804-001056	Y1	1	"OSCILLATOR-CLOCK;33MHZ,100ppm,"
2804-001311	Y2	1	"OSCILLATOR-CLOCK;25MHZ,50PPM,C"
3301-000344	BD2	1	"CORE-FERRITE BEAD;ZZ,3.5x6.5mm"
3702-001102	J1	1	"CONNECTOR-RIBBON;60P,FEMALE,ST"
3711-003205	CN6	1	"CONNECTOR-HEADER;BOX,4P,1R,2.0"
3722-001319	CN5	1	"JACK-MODULAR;8P/8C,-,AU30U,BLK"
JC94-00076A		1	PHANTOM AU JC92-01119A
0801-001072	U20	1	"IC-CMOS LOGIC;74ACT32,OR GATE,"
0903-001118	U26	1	"IC-MICROCONTROLLER;32C5000,32B"
1103-001061	U15	1	"IC-EEPROM;24C32,4Kx8BIT,SOP,8P"
1105-001252	U18	1	"IC-DRAM;416C4104,4MX16BIT,TSOP"
1106-001275	U24	1	"IC-SRAM;68257,32KX8BIT,TSOP,28"
1106-001275	U25	1	"IC-SRAM;68257,32KX8BIT,TSOP,28"
1107-001046	U19	1	"IC-FLASH MEMORY;29F800,512Kx16"
1205-001675	U165	1	"IC-TRANSCEIVER;ICS1892Y,MQFP,6"
2007-000026	R68	1	"R-CHIP;200OHM,5%,1/10W,DA,TP,2"
2007-000026	R71	1	"R-CHIP;200OHM,5%,1/10W,DA,TP,2"
2007-000026	R70	1	"R-CHIP;200OHM,5%,1/10W,DA,TP,2"
2007-000026	R69	1	"R-CHIP;200OHM,5%,1/10W,DA,TP,2"
2007-000029	R98	1	"R-CHIP;0OHM,5%,1/10W,DA,TP,201"
2007-000029	R73	1	"R-CHIP;0OHM,5%,1/10W,DA,TP,201"
2007-000029	R97	1	"R-CHIP;0OHM,5%,1/10W,DA,TP,201"
2007-000029	R30	1	"R-CHIP;0OHM,5%,1/10W,DA,TP,201"
2007-000029	R72	1	"R-CHIP;0OHM,5%,1/10W,DA,TP,201"
2007-000238	R148	1	"R-CHIP;1.5KOHM,1%,1/10W,DA,TP,"
2007-000297	R127	1	"R-CHIP;10KOHM,1%,1/10W,DA,TP,2"
2007-000297	R147	1	"R-CHIP;10KOHM,1%,1/10W,DA,TP,2"
2007-000297	R94	1	"R-CHIP;10KOHM,1%,1/10W,DA,TP,2"
2007-000297	R126	1	"R-CHIP;10KOHM,1%,1/10W,DA,TP,2"
2007-000297	R96	1	"R-CHIP;10KOHM,1%,1/10W,DA,TP,2"
2007-000297	R120	1	"R-CHIP;10KOHM,1%,1/10W,DA,TP,2"
2007-000297	R95	1	"R-CHIP;10KOHM,1%,1/10W,DA,TP,2"
2007-000297	R124	1	"R-CHIP;10KOHM,1%,1/10W,DA,TP,2"
2007-000297	R150	1	"R-CHIP;10KOHM,1%,1/10W,DA,TP,2"
2007-000297	R119	1	"R-CHIP;10KOHM,1%,1/10W,DA,TP,2"
2007-000297	R128	1	"R-CHIP;10KOHM,1%,1/10W,DA,TP,2"
2007-000297	R121	1	"R-CHIP;10KOHM,1%,1/10W,DA,TP,2"
2007-000297	R118	1	"R-CHIP;10KOHM,1%,1/10W,DA,TP,2"
2007-000297	R129	1	"R-CHIP;10KOHM,1%,1/10W,DA,TP,2"
2007-000297	R92	1	"R-CHIP;10KOHM,1%,1/10W,DA,TP,2"
2007-000449	R105	1	"R-CHIP;180OHM,5%,1/10W,DA,TP,2"
2007-000468	R87	1	"R-CHIP;1KOHM,5%,1/10W,DA,TP,20"
2007-000468	R78	1	"R-CHIP;1KOHM,5%,1/10W,DA,TP,20"
2007-000468	R76	1	"R-CHIP;1KOHM,5%,1/10W,DA,TP,20"
2007-000468	R75	1	"R-CHIP;1KOHM,5%,1/10W,DA,TP,20"
2007-000468	R88	1	"R-CHIP;1KOHM,5%,1/10W,DA,TP,20"
2007-000468	R74	1	"R-CHIP;1KOHM,5%,1/10W,DA,TP,20"
2007-000511	R111	1	"R-CHIP;2.4KOHM,5%,1/10W,DA,TP,"
2007-000766	R125	1	"R-CHIP;330OHM,5%,1/10W,DA,TP,2"
2007-000766	R89	1	"R-CHIP;330OHM,5%,1/10W,DA,TP,2"
2007-000766	R146	1	"R-CHIP;330OHM,5%,1/10W,DA,TP,2"
2007-000766	R91	1	"R-CHIP;330OHM,5%,1/10W,DA,TP,2"
2007-000766	R90	1	"R-CHIP;330OHM,5%,1/10W,DA,TP,2"
2007-000781	R145	1	"R-CHIP;330OHM,5%,1/10W,DA,TP,20"
2007-000781	R123	1	"R-CHIP;330OHM,5%,1/10W,DA,TP,20"
2007-000781	R104	1	"R-CHIP;330OHM,5%,1/10W,DA,TP,20"
2007-000781	R149	1	"R-CHIP;330OHM,5%,1/10W,DA,TP,20"
2007-000953	R109	1	"R-CHIP;49.9OHM,1%,1/10W,DA,TP,"
2007-000953	R108	1	"R-CHIP;49.9OHM,1%,1/10W,DA,TP,"
2007-001067	R110	1	"R-CHIP;6.8KOHM,1%,1/10W,DA,TP,"
2007-001092	R107	1	"R-CHIP;620OHM,5%,1/10W,DA,TP,2"
2007-001092	R106	1	"R-CHIP;620OHM,5%,1/10W,DA,TP,2"
2007-001133	R103	1	"R-CHIP;68OHM,5%,1/10W,DA,TP,20"
2007-001133	R113	1	"R-CHIP;68OHM,5%,1/10W,DA,TP,20"

NETWORK CARD PBA(100BASE)

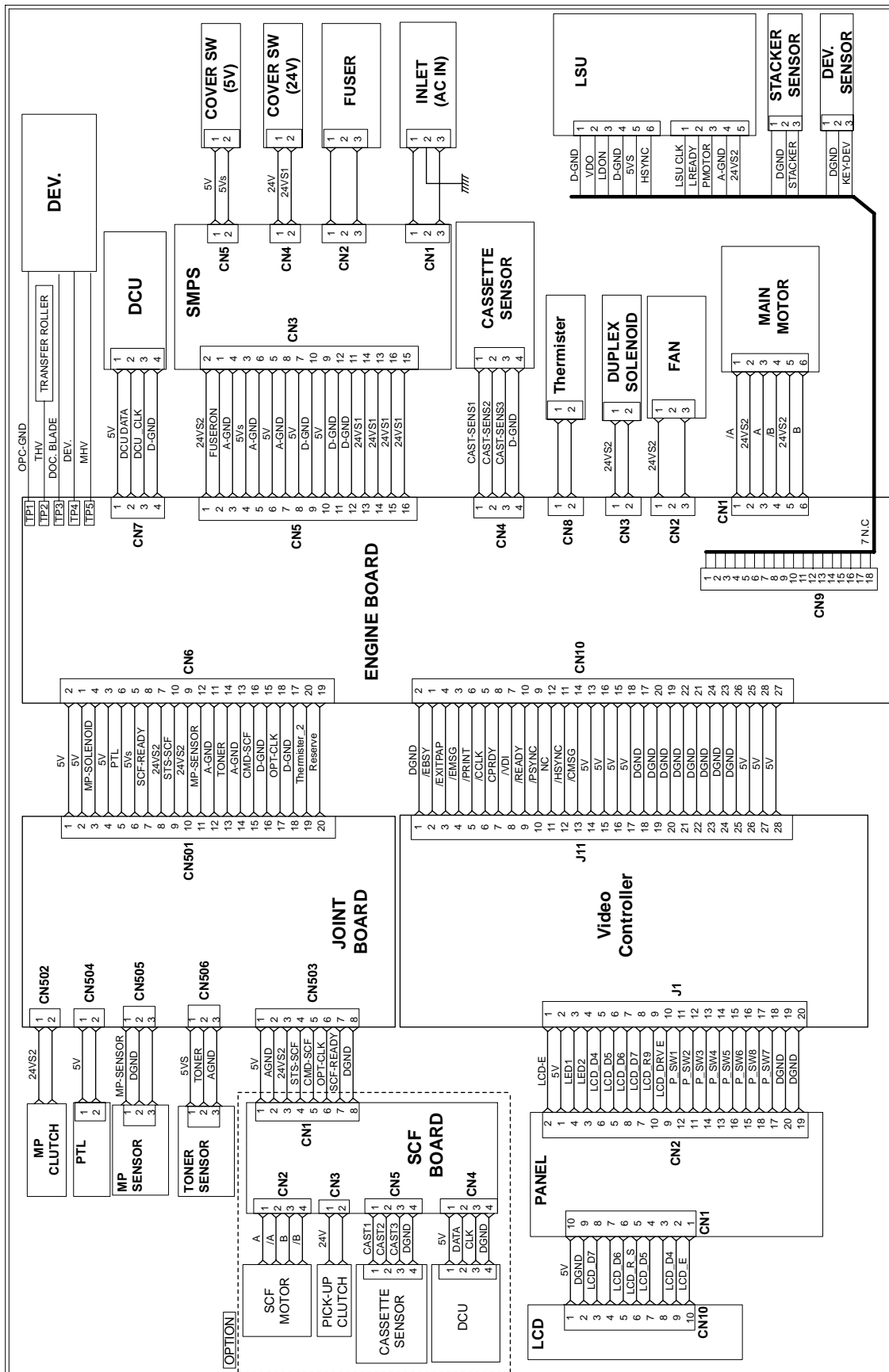
SEC CODE	LOCATION NO.	Q'ty	DESCRIPTION
2007-002826	R112	1	"R-CHIP;110OHM,1%,1/10W,DA,TP,2"
2011-001094	RA1	1	"R-NETWORK;39ohm,5%,1/16W,L,CHI"
2011-001094	RA10	1	"R-NETWORK;39ohm,5%,1/16W,L,CHI"
2203-000192	C102	1	"C-CERAMIC,CHIP;100nF,+80-20%,5"
2203-000192	C101	1	"C-CERAMIC,CHIP;100nF,+80-20%,5"
2203-000192	C105	1	"C-CERAMIC,CHIP;100nF,+80-20%,5"
2203-000192	C106	1	"C-CERAMIC,CHIP;100nF,+80-20%,5"
2203-000192	C147	1	"C-CERAMIC,CHIP;100nF,+80-20%,5"
2203-000192	C103	1	"C-CERAMIC,CHIP;100nF,+80-20%,5"
2203-000192	C100	1	"C-CERAMIC,CHIP;100nF,+80-20%,5"
2203-000192	C110	1	"C-CERAMIC,CHIP;100nF,+80-20%,5"
2203-000192	C170	1	"C-CERAMIC,CHIP;100nF,+80-20%,5"
2203-000192	C107	1	"C-CERAMIC,CHIP;100nF,+80-20%,5"
2203-000192	C104	1	"C-CERAMIC,CHIP;100nF,+80-20%,5"
2203-000192	C161	1	"C-CERAMIC,CHIP;100nF,+80-20%,5"
2203-000192	C94	1	"C-CERAMIC,CHIP;100nF,+80-20%,5"
2203-000192	C97	1	"C-CERAMIC,CHIP;100nF,+80-20%,5"
2203-000192	C96	1	"C-CERAMIC,CHIP;100nF,+80-20%,5"
2203-000192	C95	1	"C-CERAMIC,CHIP;100nF,+80-20%,5"
2203-000192	C126	1	"C-CERAMIC,CHIP;100nF,+80-20%,5"
2203-000192	C88	1	"C-CERAMIC,CHIP;100nF,+80-20%,5"
2203-000192	C162	1	"C-CERAMIC,CHIP;100nF,+80-20%,5"
2203-000192	C163	1	"C-CERAMIC,CHIP;100nF,+80-20%,5"
2203-000192	C159	1	"C-CERAMIC,CHIP;100nF,+80-20%,5"
2203-000192	C160	1	"C-CERAMIC,CHIP;100nF,+80-20%,5"
2203-000192	C127	1	"C-CERAMIC,CHIP;100nF,+80-20%,5"
2203-000192	C109	1	"C-CERAMIC,CHIP;100nF,+80-20%,5"
2203-000192	C145	1	"C-CERAMIC,CHIP;100nF,+80-20%,5"
2203-000192	C153	1	"C-CERAMIC,CHIP;100nF,+80-20%,5"
2203-000192	C152	1	"C-CERAMIC,CHIP;100nF,+80-20%,5"
2203-000192	C151	1	"C-CERAMIC,CHIP;100nF,+80-20%,5"
2203-000192	C154	1	"C-CERAMIC,CHIP;100nF,+80-20%,5"
2203-000192	C158	1	"C-CERAMIC,CHIP;100nF,+80-20%,5"
2203-000192	C141	1	"C-CERAMIC,CHIP;100nF,+80-20%,5"
2203-000192	C144	1	"C-CERAMIC,CHIP;100nF,+80-20%,5"
2203-000192	C135	1	"C-CERAMIC,CHIP;100nF,+80-20%,5"
2203-000192	C134	1	"C-CERAMIC,CHIP;100nF,+80-20%,5"
2203-000192	C133	1	"C-CERAMIC,CHIP;100nF,+80-20%,5"
2203-000192	C148	1	"C-CERAMIC,CHIP;100nF,+80-20%,5"
2203-000192	C149	1	"C-CERAMIC,CHIP;100nF,+80-20%,5"
2203-000192	C150	1	"C-CERAMIC,CHIP;100nF,+80-20%,5"
2203-000192	C131	1	"C-CERAMIC,CHIP;100nF,+80-20%,5"
2203-000192	C130	1	"C-CERAMIC,CHIP;100nF,+80-20%,5"
2203-000192	C129	1	"C-CERAMIC,CHIP;100nF,+80-20%,5"
2203-000192	C128	1	"C-CERAMIC,CHIP;100nF,+80-20%,5"
2203-000192	C143	1	"C-CERAMIC,CHIP;100nF,+80-20%,5"
2203-000192	C146	1	"C-CERAMIC,CHIP;100nF,+80-20%,5"
2203-000192	C108	1	"C-CERAMIC,CHIP;100nF,+80-20%,5"
2203-000192	C140	1	"C-CERAMIC,CHIP;100nF,+80-20%,5"
2203-000192	C139	1	"C-CERAMIC,CHIP;100nF,+80-20%,5"
2203-000192	C138	1	"C-CERAMIC,CHIP;100nF,+80-20%,5"
2203-000192	C137	1	"C-CERAMIC,CHIP;100nF,+80-20%,5"
2203-000192	C142	1	"C-CERAMIC,CHIP;100nF,+80-20%,5"
2203-000192	C132	1	"C-CERAMIC,CHIP;100nF,+80-20%,5"
2203-000192	C136	1	"C-CERAMIC,CHIP;100nF,+80-20%,5"
2203-000316	C185	1	"C-CERAMIC,CHIP;0.12nF,5%,50V,N"
2203-000476	C169	1	"C-CERAMIC,CHIP;1000nF,+80-20%,5"
2203-000476	C90	1	"C-CERAMIC,CHIP;1000nF,+80-20%,5"
2203-001002	C184	1	"C-CERAMIC,CHIP;0.047nF,5%,50V,N"
2203-001002	C182	1	"C-CERAMIC,CHIP;0.047nF,5%,50V,N"
2203-001002	C183	1	"C-CERAMIC,CHIP;0.047nF,5%,50V,N"
2404-000128	C186	1	"C-TA,CHIP;10uF,20%,16V,-,TP,60"
2404-000128	C92	1	"C-TA,CHIP;10uF,20%,16V,-,TP,60"
2404-000128	C91	1	"C-TA,CHIP;10uF,20%,16V,-,TP,60"
2703-000125	L1	1	"INDUCTOR-SMD;10uH,10%,1.25x2x1"
2703-000125	L2	1	"INDUCTOR-SMD;10uH,10%,1.25x2x1"
3301-001312	R144	1	"CORE-FERRITE BEAD;AB,220OHM,2X"

NETWORK CARD PBA(100BASE)

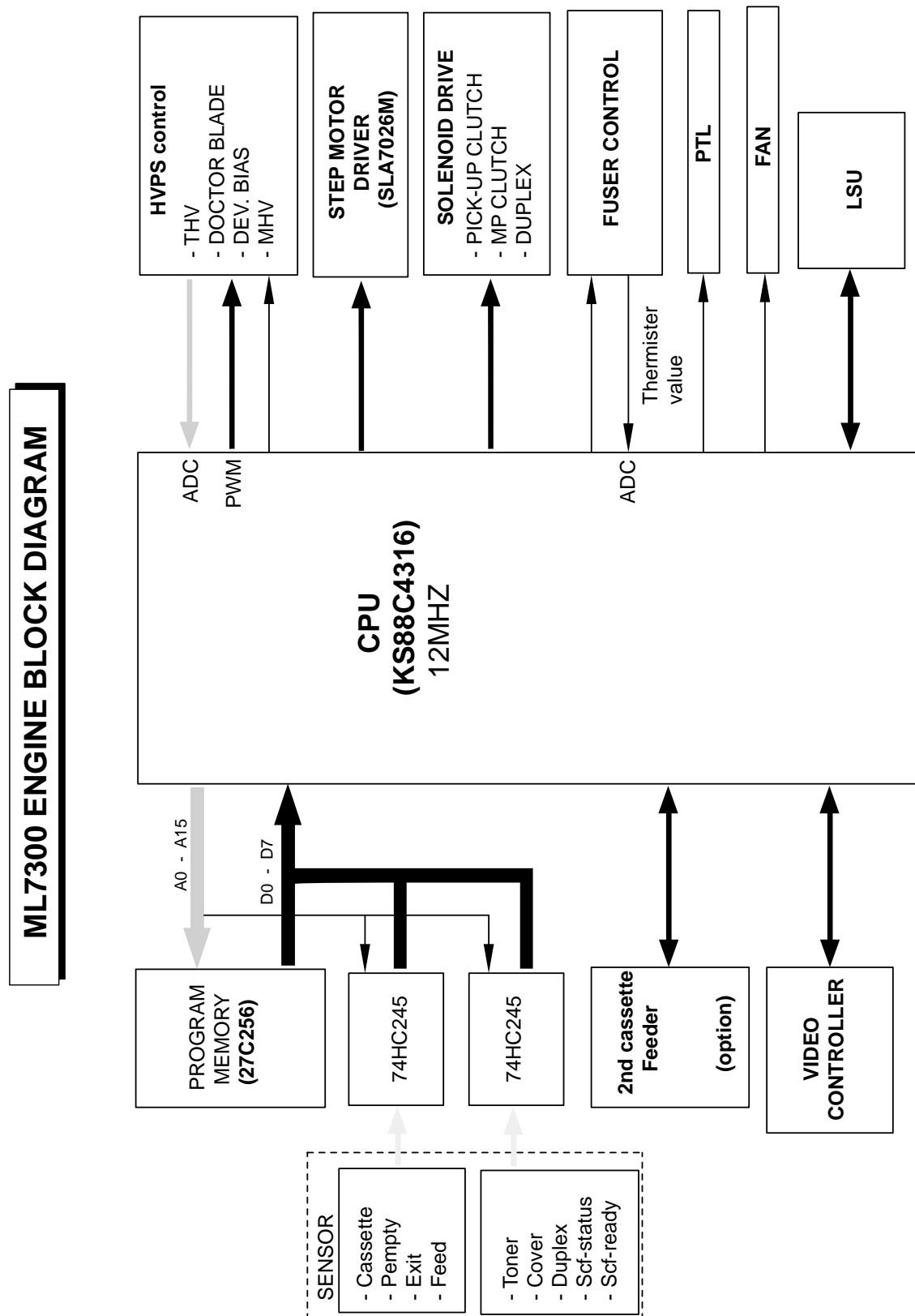
SEC CODE	LOCATION NO.	Q'ty	DESCRIPTION
3301-001312	R138	1	"CORE-FERRITE BEAD;AB,220OHM,2X"
3301-001333	R80	1	"CORE-FERRITE BEAD;AB,120OHM,2X"
3301-001333	R79	1	"CORE-FERRITE BEAD;AB,120OHM,2X"
JC13-00004A	U22	1	"IC-ASIC-NPC;ML-7000N3,NETBRIDG"
JC41-00011A	PCB	1	PCB

08- Block Diagrams

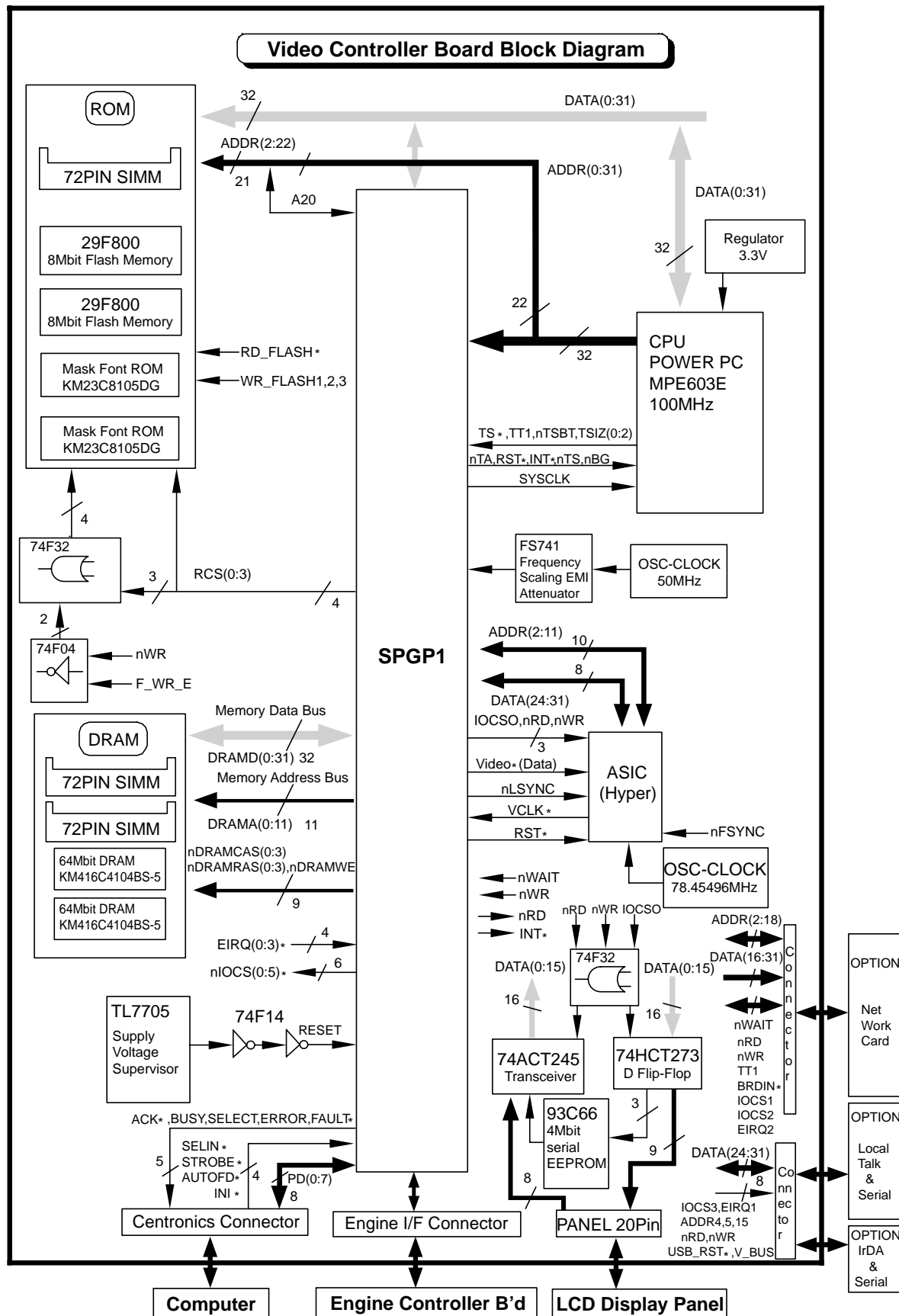
8-1 WIRING DIAGRAM



8-2 Engine Controller Block Diagram



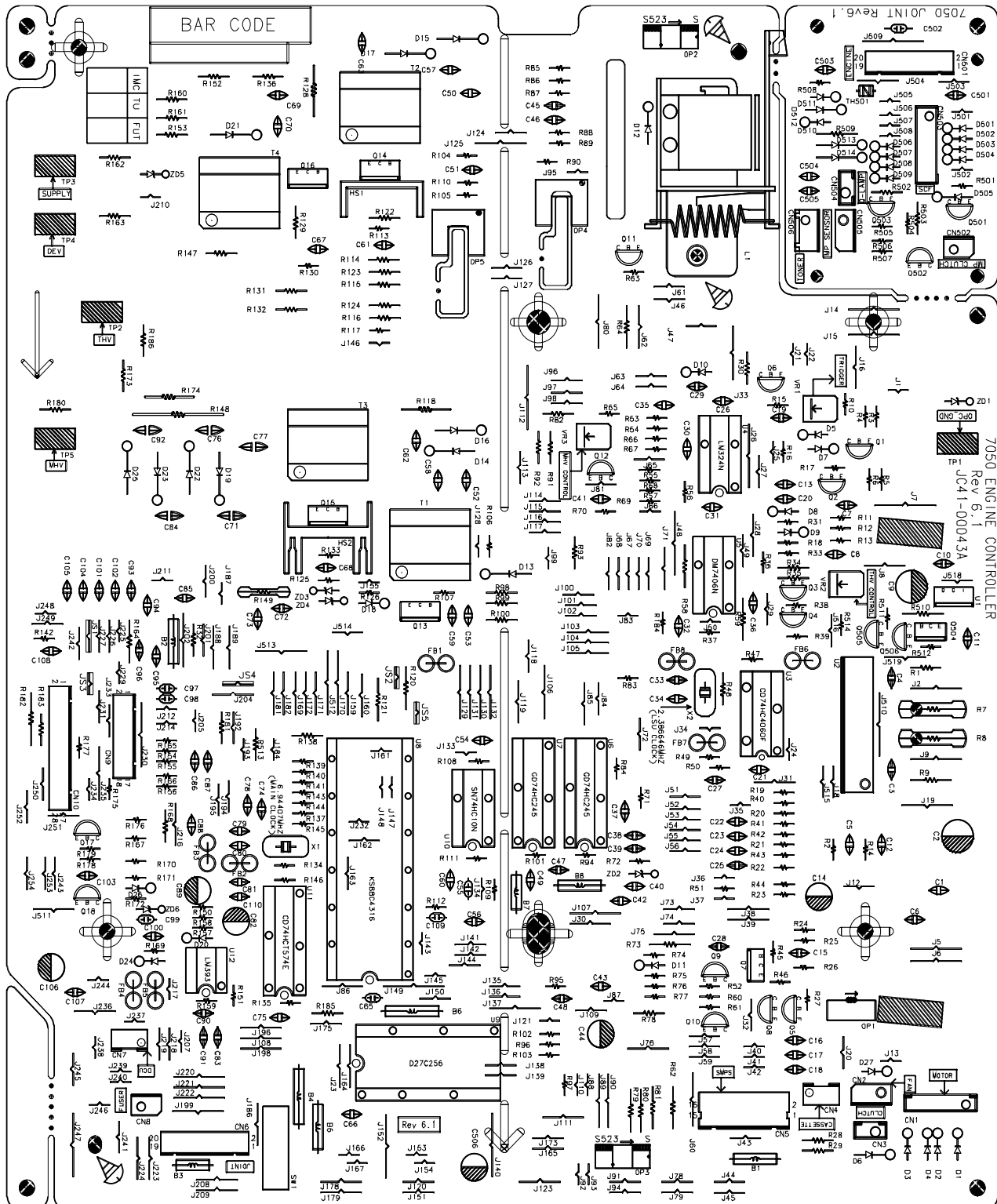
8-3 Video Controller Block Diagram



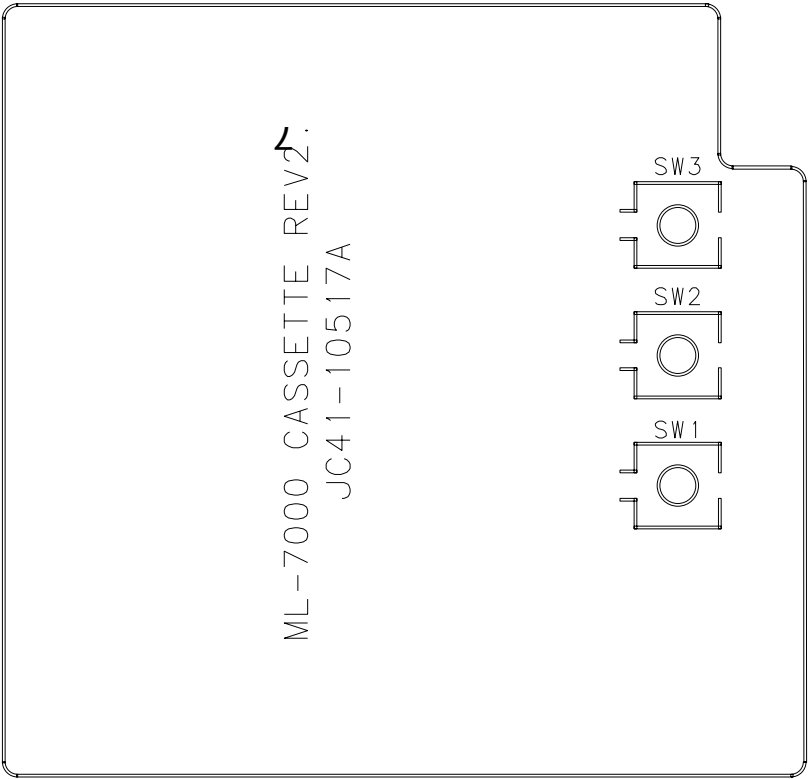
MEMO

09- PCB Diagrams

9-1. Engine Control & Joint Board



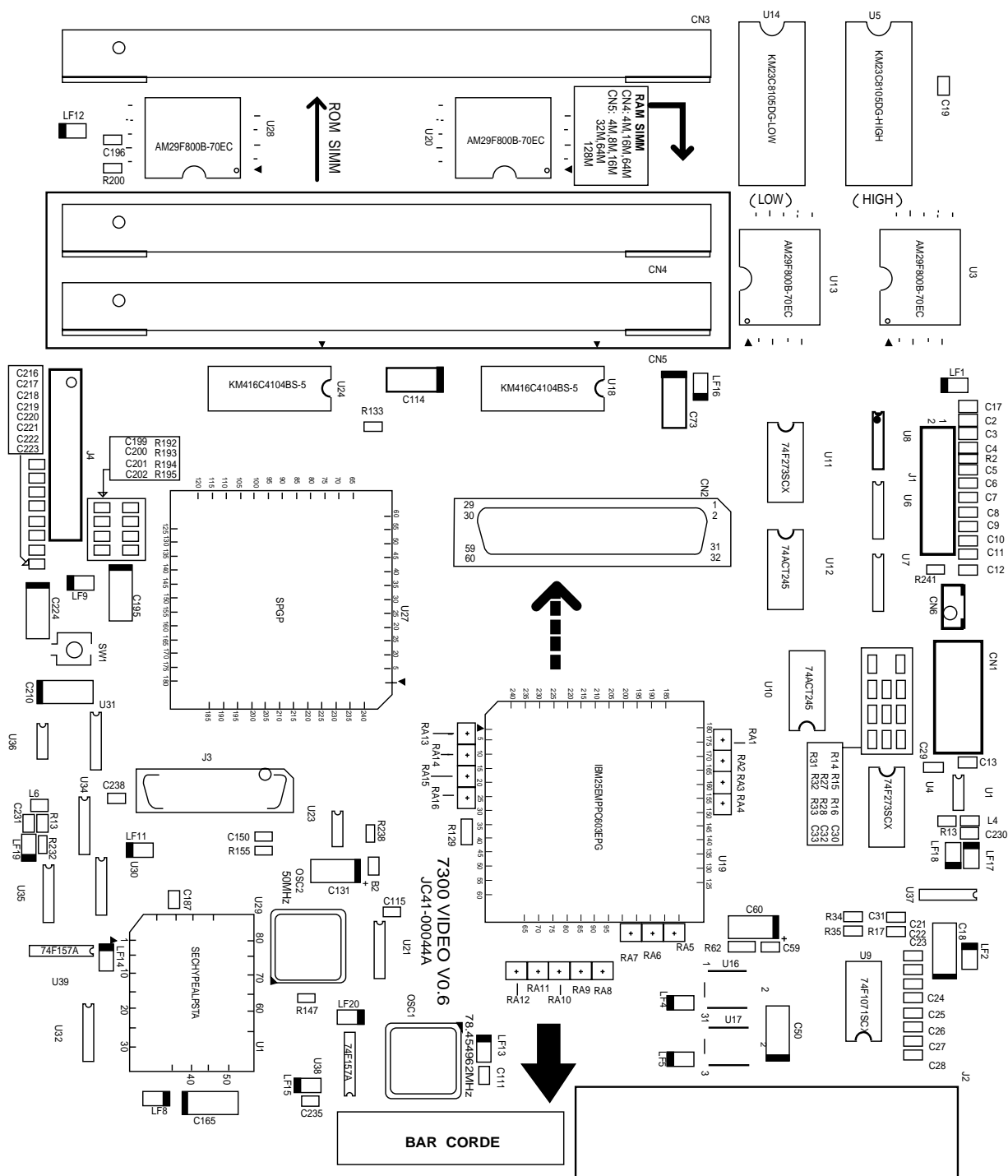
9-2. Cassette Sensor Board



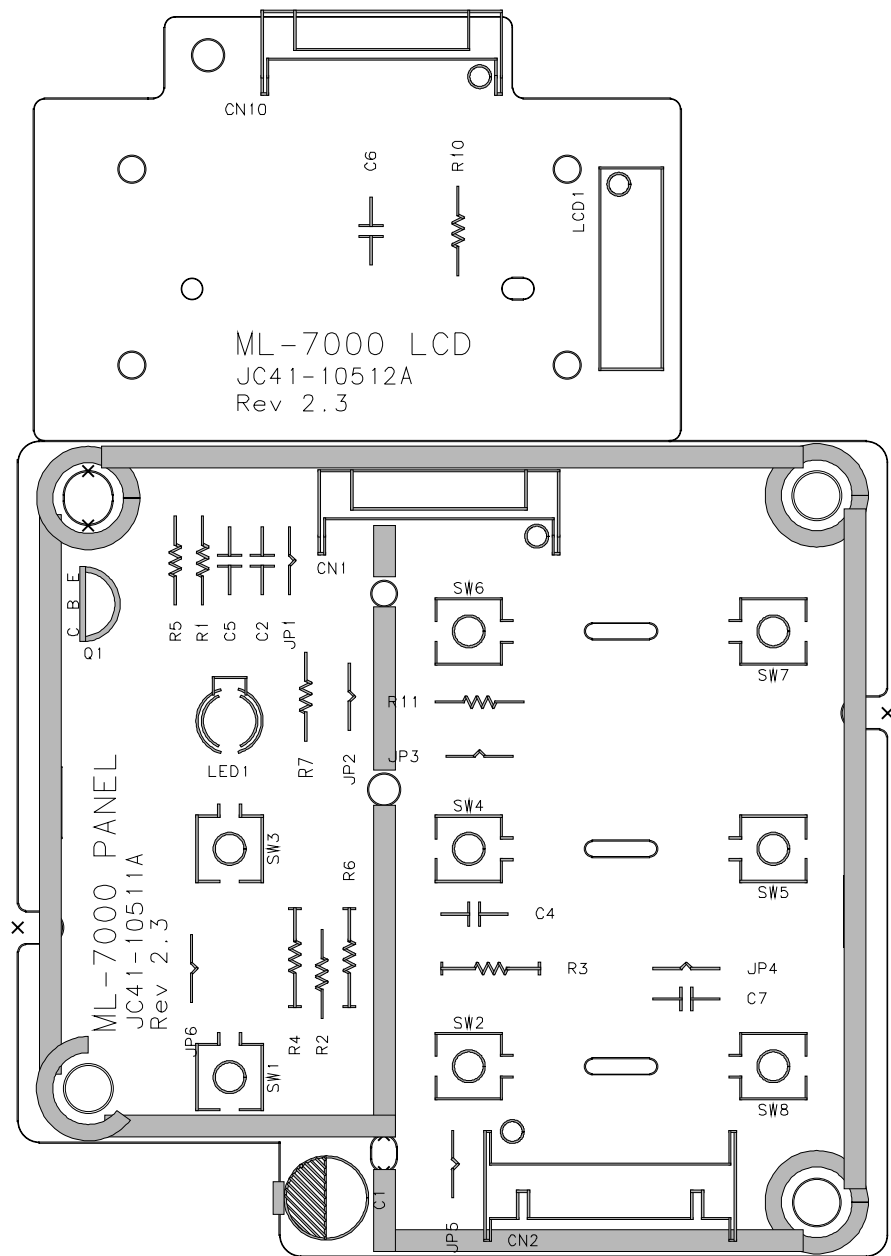
9-3. Video Controller Board

S10 115 01 JC41-00044A

L.S.D REV:0.6 TMK



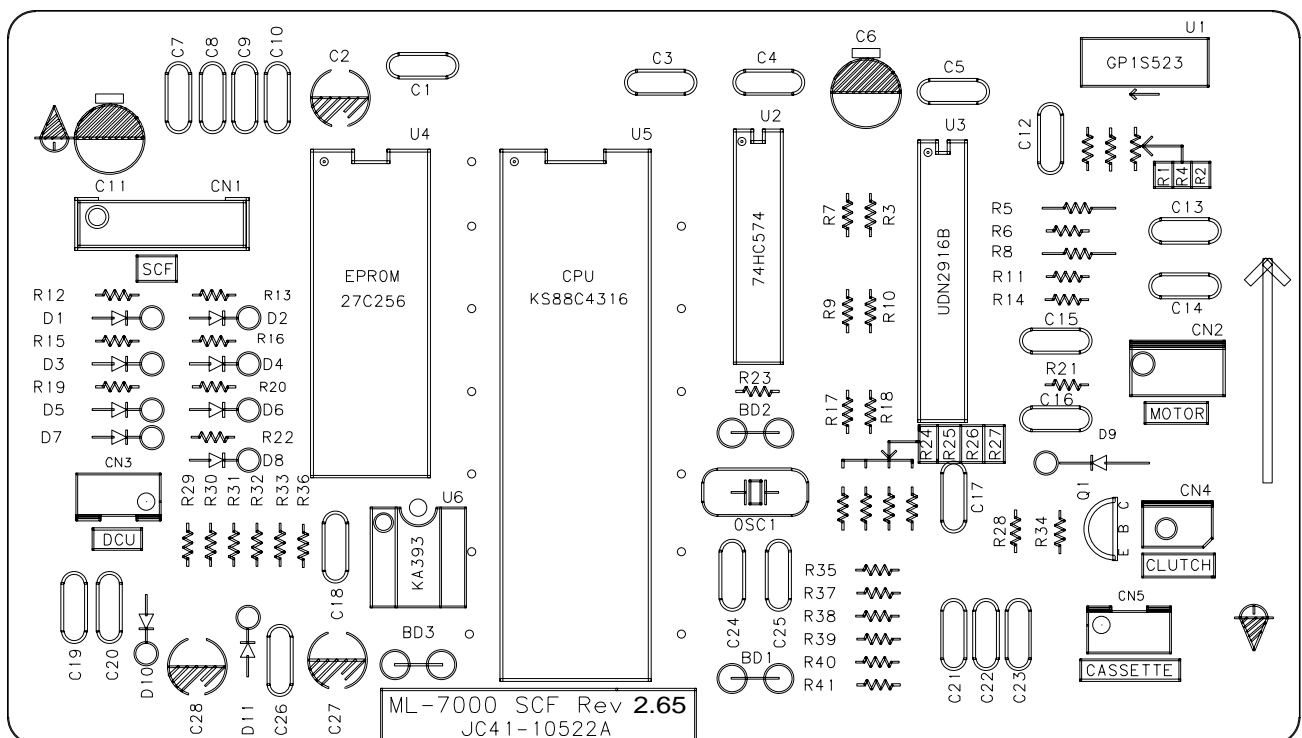
9-4. Panel & LCD Board



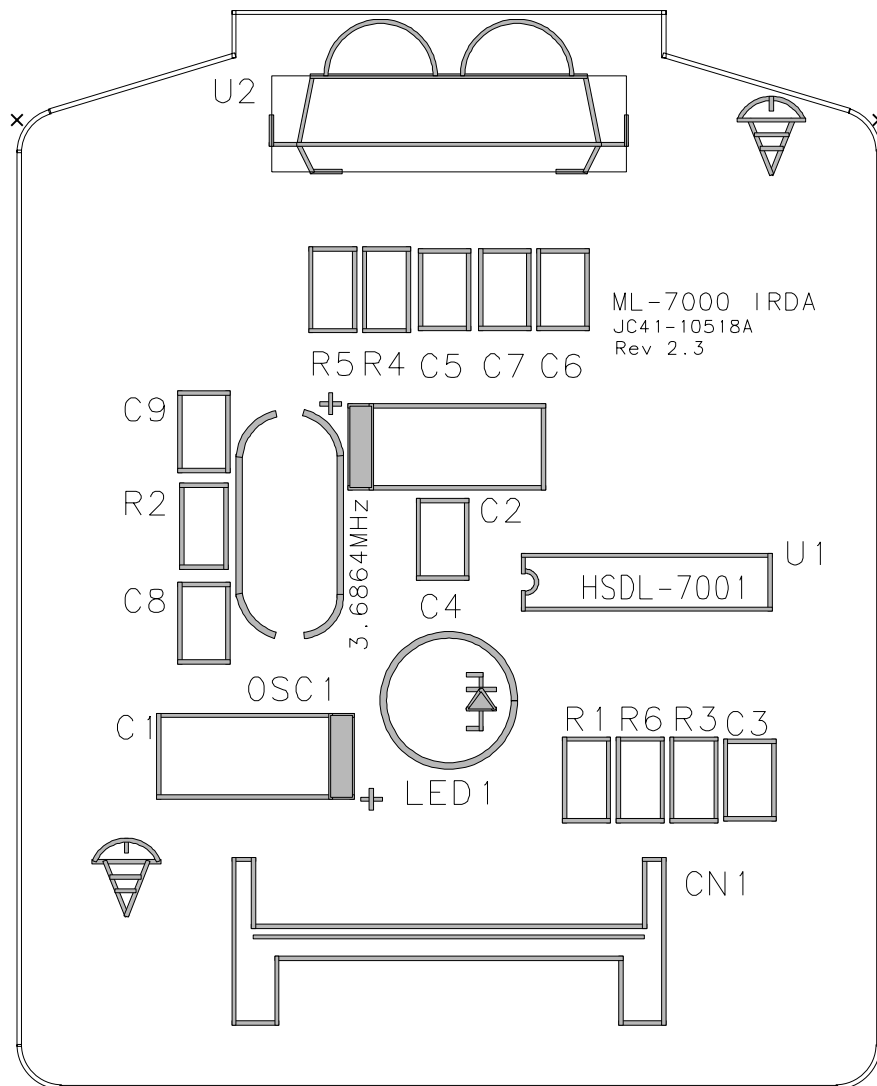
9-5. PTL (Pre Transfer Lamp) Board



9-6. SCF(Second Cassette Feeder) Board

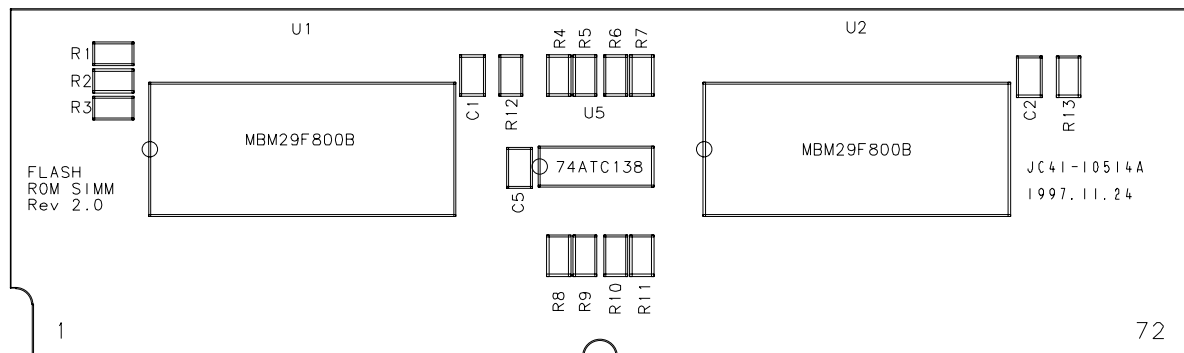


9-7. Infrared Adaptor Board

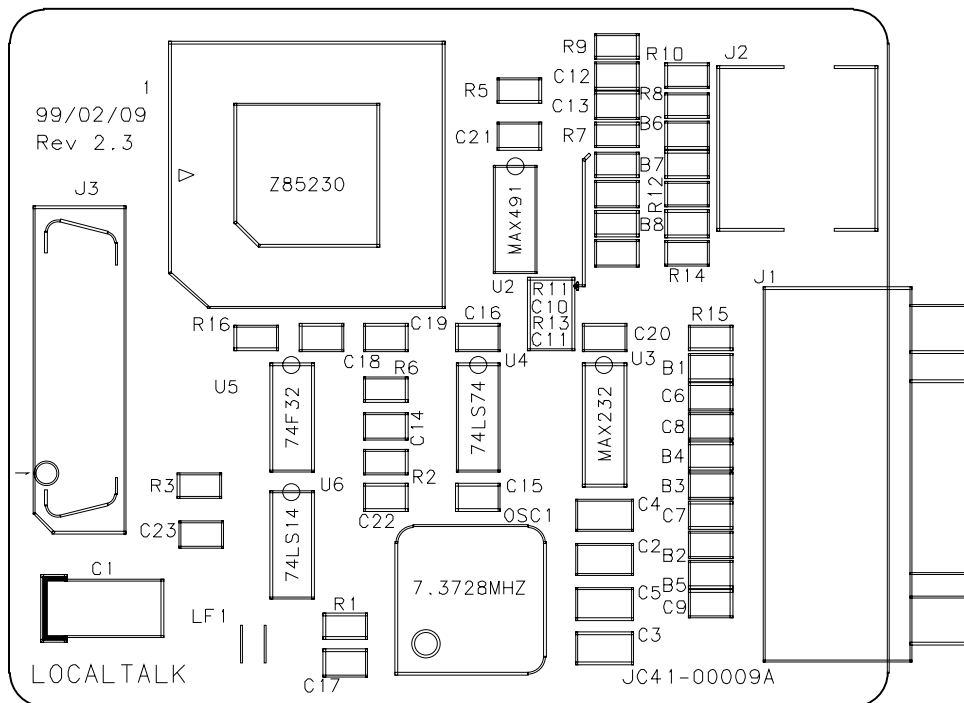


9-8. Flash SIMM Board

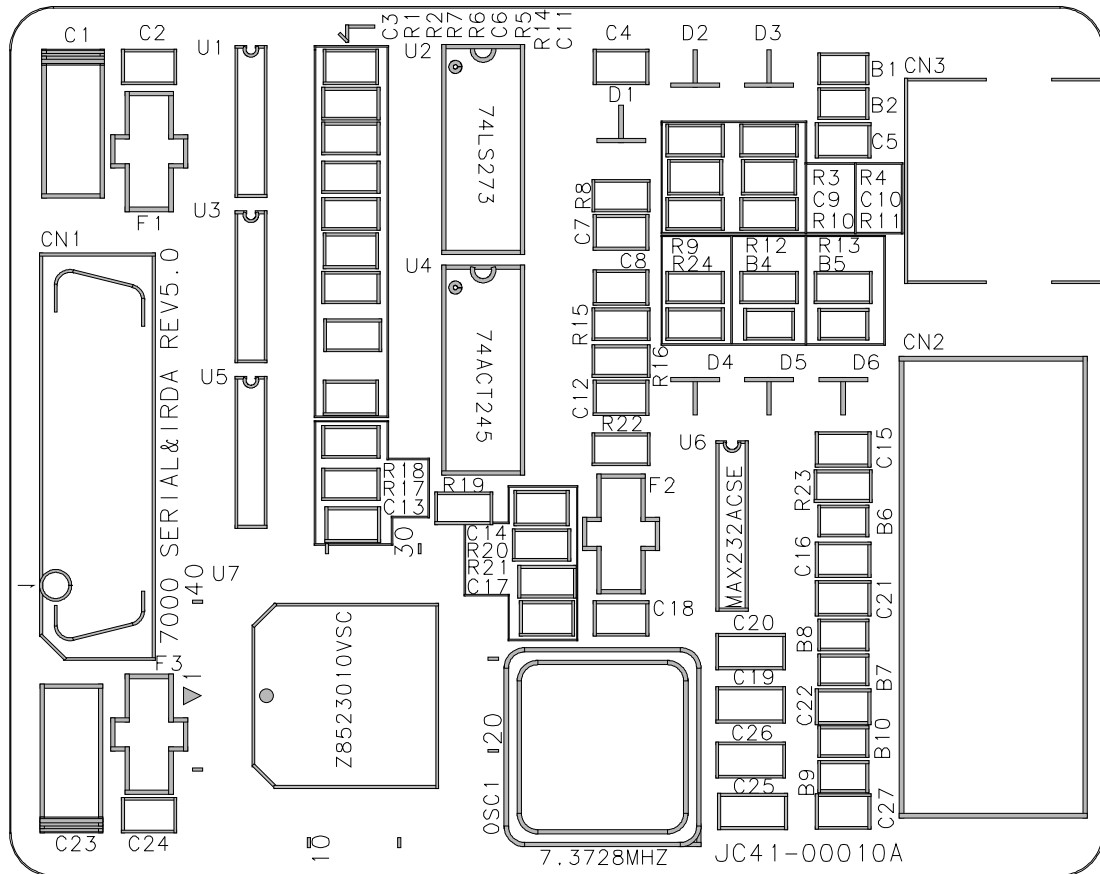
9-9. Postscript Board



9-10. Local Talk



9-11. Serial/IrDA Board



10. PortThru (Network Printer Card) Circuit Description

10-1. Introduction

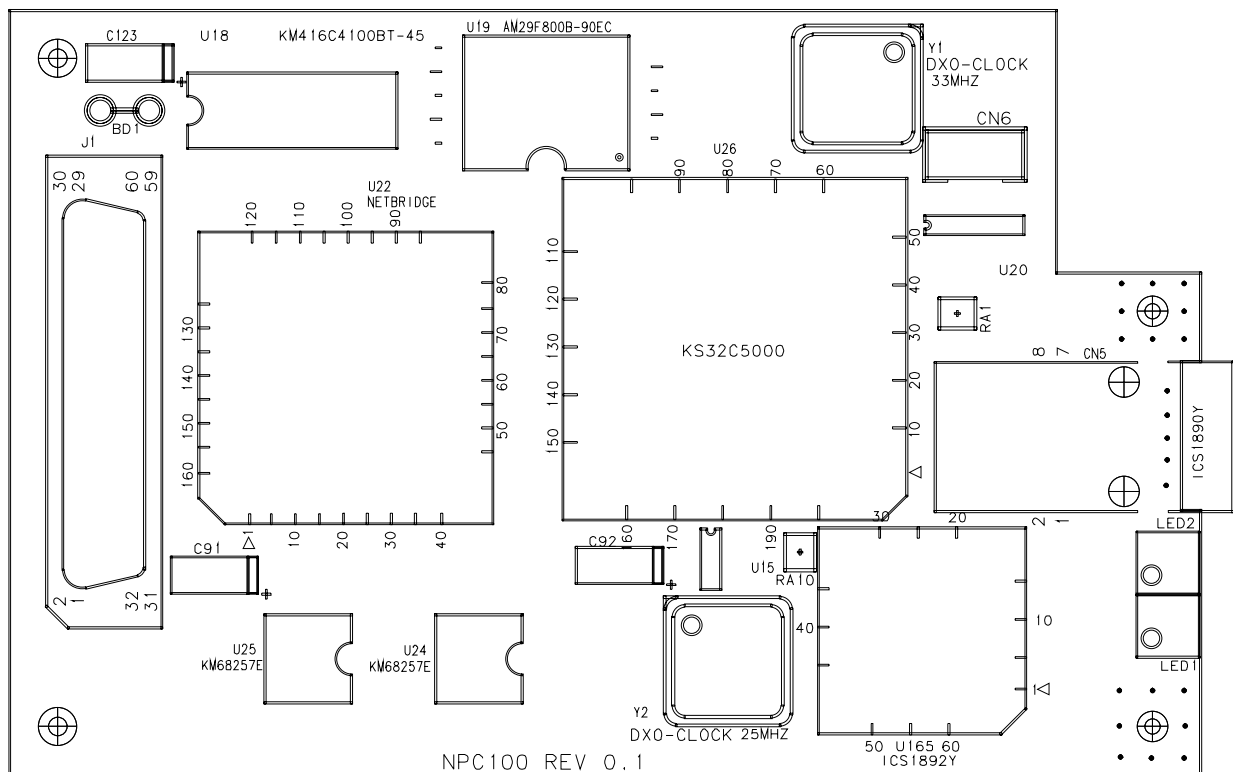
The purpose of the Network Printer Card(PortThru) is to enable the Samsung Printer to function as a network printer. The PortThru is a plug-in card that plugs into the Samsung Printer. The PortThru provides a Ethernet Local Area Network interface through which the printer can be connected to the network.

ITEM		Description
Support system	Novell Netware	Version 3.x, 4.x, 5.0
	MS Windows	Windows 95/98, Windows NT(3.x, 4..x)
	UNIX	AT & T System V(Rel 3.2, Rel 4.2), BSD 4.3 HP-UX(Rel 9.x, Rel 10.x) SCO 5.x, SUN OS 5.5, SOLARIS 2.5
	Macintosh	APPLE
Support protocols	Netware	IPX/SPX, Pserver, Rprint mode, NDS/Bindery
	Windows	IPX/SPX, TCP/IP, DLC/LLC
	UNIX	TCP/IP
	APPLE	EtherTalk Phase 2
	Network Management	SNMP MIB-II, Private MIB
Hardware	CPU	32bit RISC controller
	Flash memory	1M byte
	RAM	64 Kbyte SRAM / 8M byte DRAM
Interface with Printer	Shared memory	64K byte SRAM
Logical connection		IEEE 802.2 802.3
Attachment		10/100Base-Tx
CPU		Samsung NetARM, 33MHz
PHY Chip		ICS1892, 25MHz
Memory	Flash ROM	1M Byte
	DRAM	8M Byte
	SRAM	64K Byte
	EEPROM	32K Bit
Printer Interface		NetBridge, 33MHz
		60 Pin Connector
Dimension(HxWxD)		15 x 80 x 124mm
Power Consumption		Max. 0.6A/ +5Vdc

10-2. Board Description

10-2-1 Configuration of Network Board

Service Part : JC92-01119A

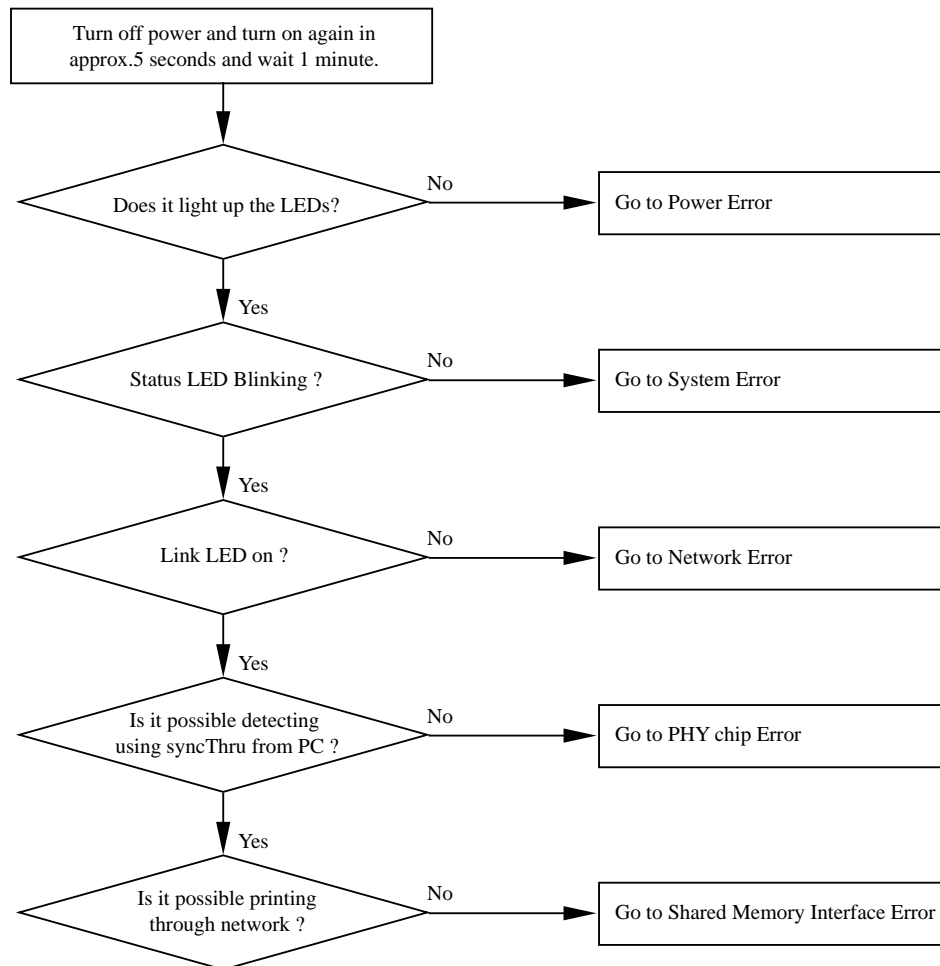


10-2-2 Network Board Connector Pin Assignment

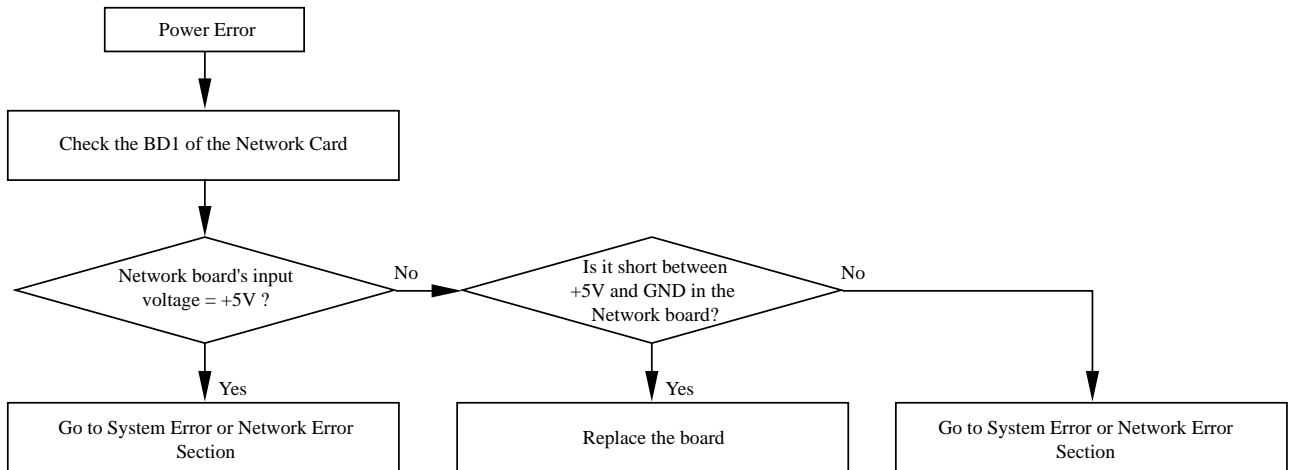
Connector	Description	Pin No.	Idle	Active	In/Out
Printer Interface J1	Addr 0 ~ Addr 15	21, 19, 18, 17, 37, 44, 42, 40, 38, 36, 34, 32 30, 28, 26, 24	Pulse	Pulse	I
	Data 0 ~ 15	35, 33, 31, 29, 27, 25 23, 22, 14, 13, 11, 10 9, 7, 6, 5	Pulse	Pulse	I/O
	nPrnWait	41	+5V	DGND	O
	PRES_L	57	DGND	DGND	-
	nPrnIrq	15	+5V	DGND	O
	nPrnCS	4	+5V	DGND	I
	nPrnRE	50	+5V	DGND	I
	nPrnWE	51	+5V	DGND	I
	nResetIn	39	+5V	DGND	I
	+5V	3, 58, 59, 60	+5V	+5V	-
	DGND	8, 12, 16, 48, 52, 56	DGND	DGND	-
Serial Connector CN6	RxD	1	+5V	Pulse	I
	TxD	2	+5V	Pulse	O
	+5V	3	+5V	+5V	-
	DGND	4	DGND	DGND	-

10-3 Troubleshooting of Network Card

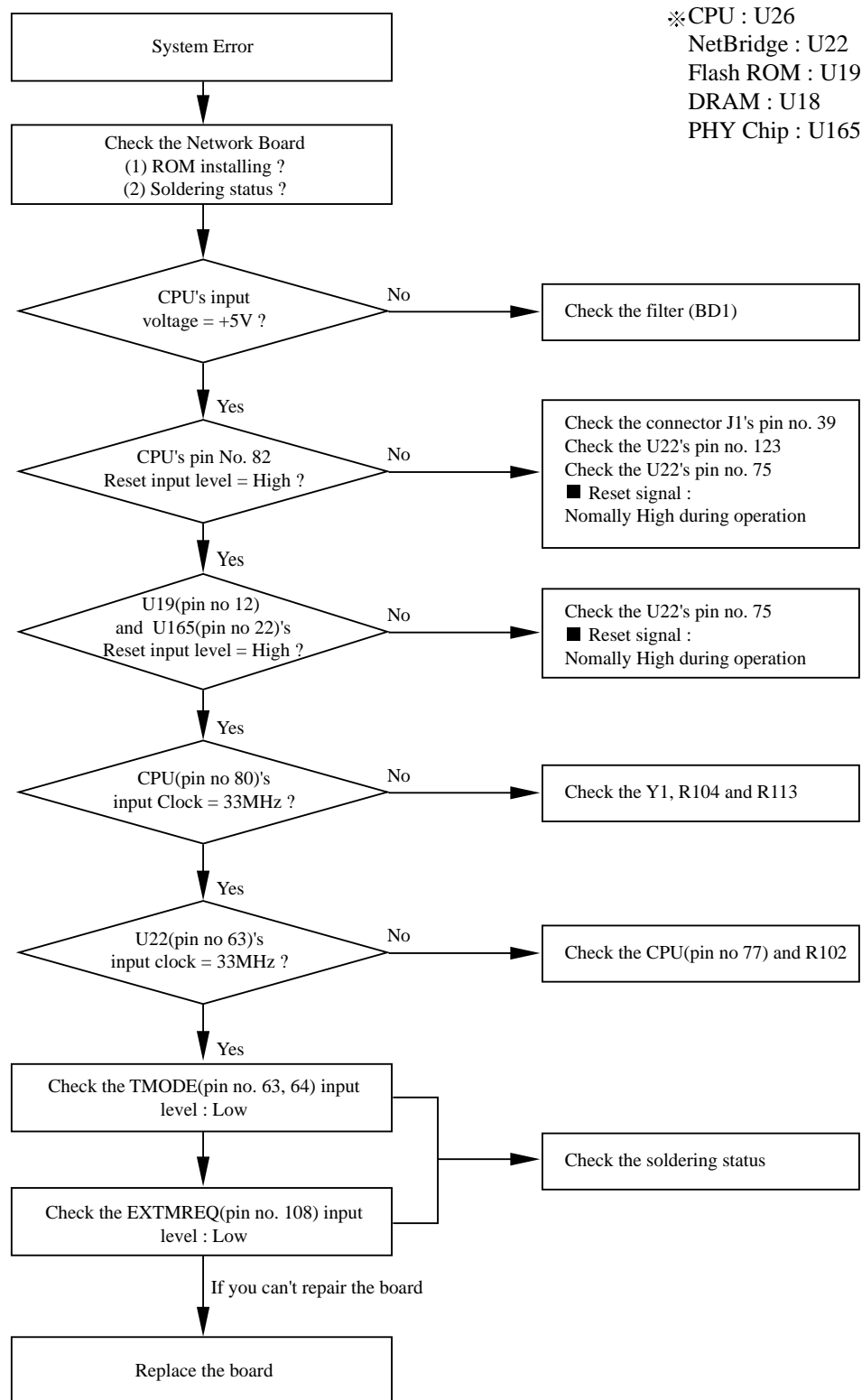
10-3-1 Troubleshooting Flow Chart



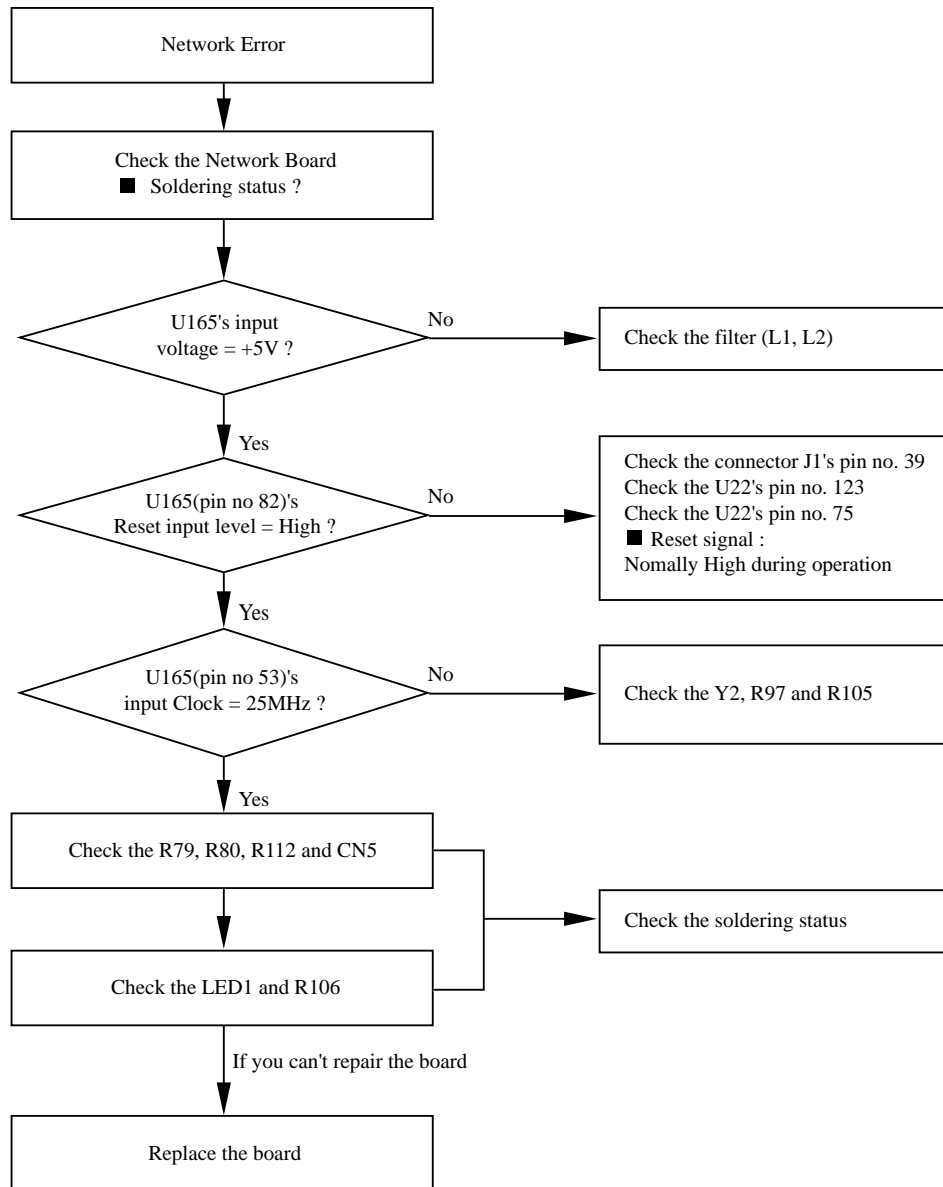
Power Error



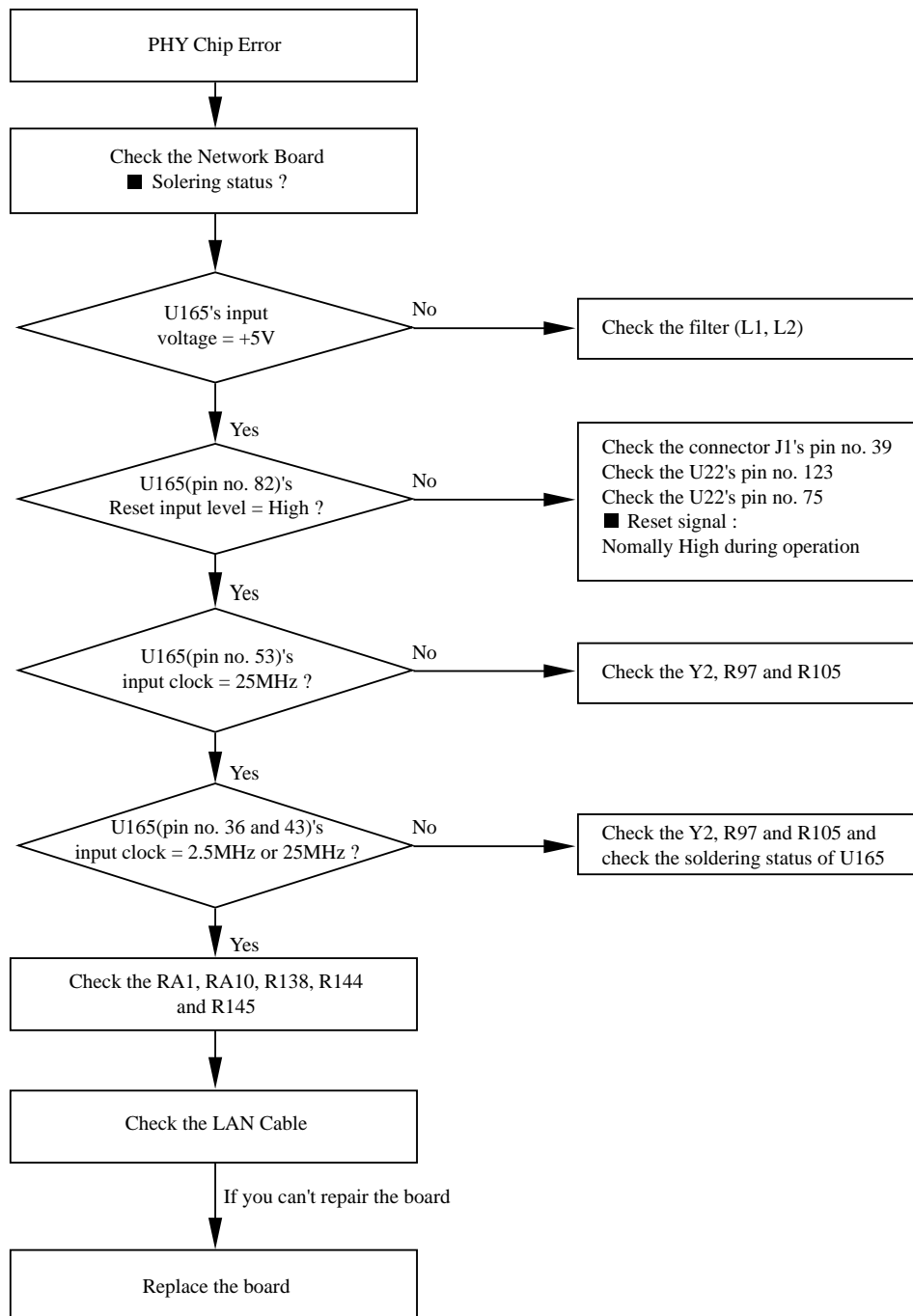
System Error



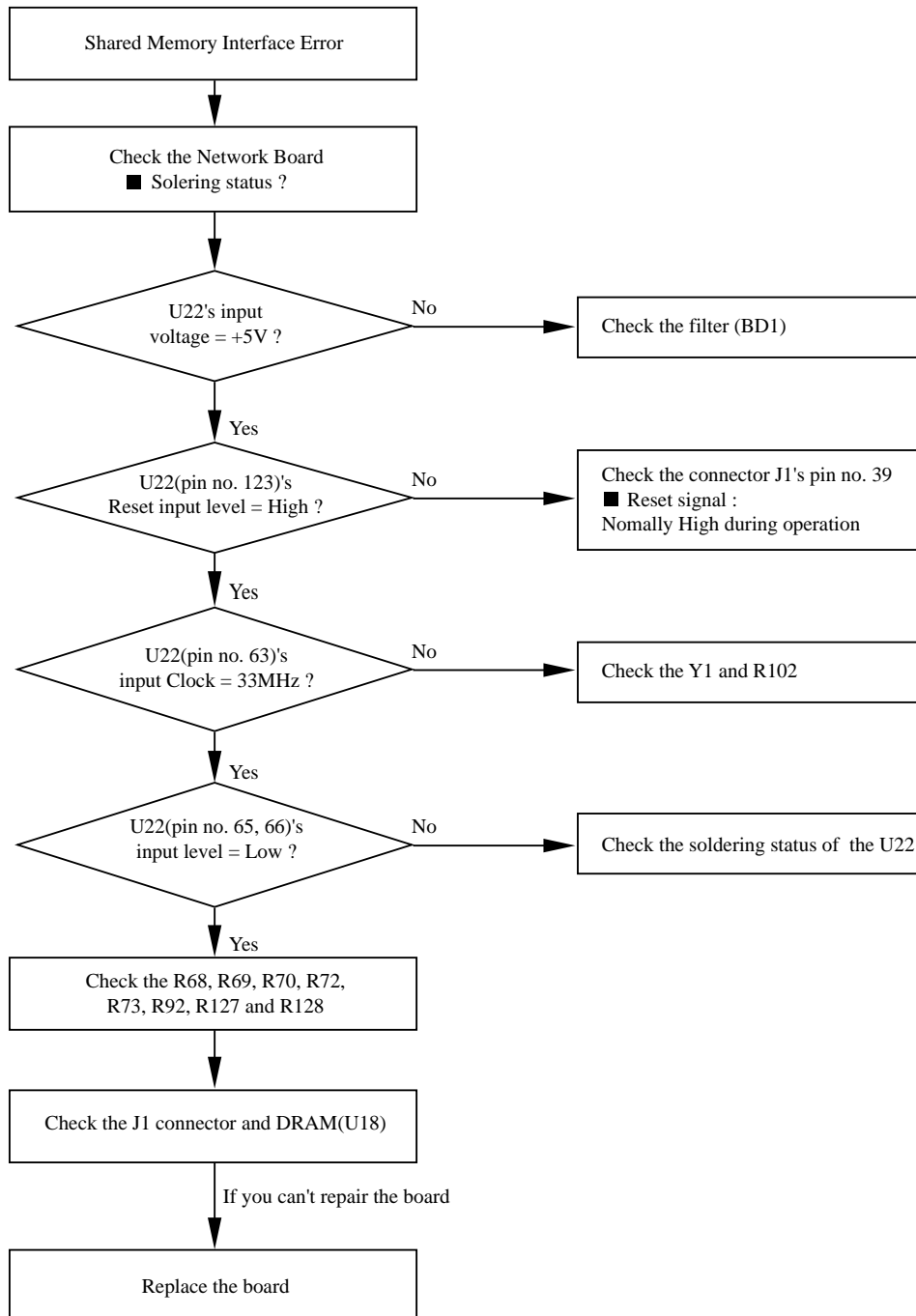
Network Error



PHY Chip Error



Shared Memory Interface Error



10-3-2 Troubleshooting Table of Network Card

No.	Error Type	Check List	Repair
1	The LEDs does not lit up	Power Connection	Check the BD1 of Network Card
		VCC voltage (nominal is +5V) level VCC voltage should be in the range between +4.75 and +5.25V	Refer to the section of Power Error Troubleshooting
		Short between VCC and GND.	Repair board
2	The status LED does not blinking	Reset Error : Reset signal is normalhigh during operation	
		System source clock is 33MHz. Check point : Y1's pin 5 and U26's pin 80	Replace the Y1.
		The output clock of U26 is 33MHz. The input clock of U26 is 33MHz.	Check the R102 and R122. If these two resistors are OK then replace the board.
		Check the ROM Chip select signals (Pin no U26-75 and U19-26)	
		Check the DRAM control signals(pin no U26-89, 95, 96, 99, 100 and U18-13, 14, 36, 37, 38)	
3	The status LED is OK but the LINK LED does not lit up	Reset Error : Reset signal is normal high during operation	
		The input clock of U165 is 25MHz.	Check the Y2, R97 and R105. If these two resistors are OK then replace the Y2
		Check the R79, R80 and R112 Check the output and input signal of U165 of RJ45 connector side. Pin no. 5, 6, 10, 11 of U165.	
4	The two LEDs are OK but can't detect the Network Printer using SyncThru from PC	Check the MII signals between U26 and U165 (Pin no. 30, 31, 32, 33, 34, 35, 36, 37, 38, 42, 43, 44, 45, 46, 47, 48, 49, 50) Check RA1, RA10, R138, R144 and R145.	Refer to the section of PHY chip error
5	The SyncThru can detect the Network Printer card but Printer does not printing.	The output clock of U26 is 33MHz. The input clock of U22 is 33MHz.	Check the R102 and R122. If these two resistor are OK then replacethe board.
		Check the Shared Memory Cotrol signals. U22-37, 38, 39 and R68, R69 and R70	Refer to the Shared Memory Interface Error Section.

All parts list

부품명			수량
ML-7300N	CORE-FERRITE		1
	UNIT-LSU		1
	MAN(CARD)- QRG CARD		1
	BOX-MAIN		1
	ELA HOU-FRE BASE OUT		1
	ELA HOU-CST SENSER		1
		SCREW-MACHINE	2
	ELA UNIT-B/K C/O(KME)	IPR-BRKT PAPER SIZE	1
		IPR-PUSH PLT SPRING	1
		PBA SUB-CASSETTE	1
			1
		SCREW-MACHINE	2
		CABLE TIE	1
		CBF HARNESS-COVER ASS'Y	1
		SPRING-C/O	1
		SPRING-C/O COM	1
		PMO-ACTUATOR C/O	1
		MEA RACK-BRKT C/O	1
		IPR-BRKT C/O	1
		IPR-GROUND BRKT C/O	1
	ELA UNIT-PTL		1
	ELA UNIT-FUSER TERMINAL	PMO-COVER QUENCHING	1
		PBA SUB-PTL	1
	MEA RACK-GUIDE T/R	SCREW-ASS'Y MACH	2
		NUT-HEXAGON	2
		CABLE TIE	1
		CBF HARNESS-FUSING	1
		IPR-TERMINAL FU	2
		PMO-HOUSING TERMINAL	1
	MEA RACK-EXIT ROLLER	CABLE CLAMP	1
		IPR-PLATE SAW	1
		PPR-INSULATOR G/TR	1
		PMO-GUIDE TRANSFER	1
		PMO-HOLDER SAW	1
	MEA RACK-TERMINAL HV		4
		SPRING-EXIT ROLL FD	1
		PMO-HOLDER EXIT ROLL	1
		PMO-ROLLER FD F	1
	MEA UNIT-GUIDE DEVE:L	PMO-ROLLER FD R	1
			1
	MEA UNIT-GUIDE DEVE:R	SPRING-CS	3
		ICT-TERMINAL HV	3
	MEA UNIT-HOLDER TR:R	"SPRING-PS,G/DEV"	1
		PMO-GUIDE DEV L	1
	MEA UNIT-HOLDER TR:L	"SPRING-PS,G/DEV"	1
		PMO-GUIDE DEV R	1
			1
		SPRING-PLATE TR	1
	MEA UNIT-GUIDE P/UPPER	SPRING-TR_R	1
		PMO-BUSH	1
		PMO-HOLDER TR R	1
	ELA HOU-MP TRAY	SPRING-TR_L	1
		PMO-BUSH	1
		PMO-HOLDER TR L	1
	ELA HOU-BRKT DUPLEX	IPR-GUIDE P/UPPER	1
		UNIT/AGITATOR-BRUSH G/P	1
			1
	ELA HOU-MP TRAY	PHOTO-INTERRUPTER	1
		SCREW-TAPTITE	1
		SCREW-TAPTITE	1
		SCREW-TAPTITE	2
		RING-E	1
		SOLENOID-MP	1
		CBF HARNESS-MP	1
		SPRING-C/O COM	1
		SPRING-KNOCK UP MP	1
		SPRING-F/P MP	1
		BEARING-PICK UP	2
		GEAR-CAM	1
		IPR-K/UP PLATE MP	1
		IPR-BKT SOLENOID MP	1
		ICT-SHAFT PICK UP MP	1
		PMO-FRAME MP	1
		PMO-BUSHING K/UP MP	1
		PMO-IDLE PICK UP MP	2
		PMO-HOUSING P/UP MP	1
		PMO-LIMIT SOLENOID	1
		PMO-HOLDER PAD MP	1
		PMO-BKT HOLDER MP	1
		PMO-ACTUATOR EMPTY	1
		PMO-SUB GUIDE MP	1
		PMO-GUIDE RING	1
		PMO-ACTUATOR PAPER	1
		RPR-PAD KNOCK UP MP	1
		RPR-RUBBER P/UP MP	1
		RPR-FRICTION PAD MP	1
	ELA HOU-BRKT DUPLEX		1
		SCREW-TAPTITE	1
		SCREW-TAPTITE	2
		RING-CS	3
	ELA HOU-BRKT DUPLEX	RING-E	3
			3

All parts list

		SOLENOID-DUPLEX	1
		SPRING-SOLENOID DP	1
		SPRING-PLATE K/UP	1
		BELT-TIMMING	1
		"GEAR-EXIT/U,ID"	1
		"GEAR-DP/IDLE"	2
		GEAR-DUPLEX	2
		IPR-BRKT DUPLEX	1
		IPR-LINK DUPLEX	1
		ICT-SHAFT BELT	1
		ICT-SHAFT BELT2	1
		ICT-SHAFT SWING	1
		PMO-BRKT GEAR LOWER	1
		PMO-BEARING LARGE DP	4
		"PMO-BEARING SMALL,DP"	2
		PMO-PULLEY DUPLEX	2
	ELA HOU-ENGINE_7300		1
		PPR-INSULATOR PCU	1
		PBA MAIN-ENGINE 7300	1
		MEA UNIT-SHIELD PCU	1
		SCREW-TAPTITE	2
		SCREW-TAPTITE	4
		SCREW-TAPTITE	2
		SCREW-TAPTITE	3
		CBF HARNESS-DUPLEX GND	1
		SPRING-FRONT DP	1
		BELT-TIMMING	1
		GEAR-DUPLEX	1
		IPR-BRKT SUPPORTER	1
		IPR-GUIDE DUPLEX	1
		IPR-GUIDE FRONT DP	1
		IPR-SHIELD PCB	1
		IPR-SPRING UPPER DP	2
		IPR-BRKT IDLE ROLLER	1
		IPR-SHEET FRONT DP	1
		PMO-ACTATOR FRONT DP	1
		PMO-GUIDE UPPER DP	1
		"PMO-LEVER-OPEN,DP"	1
		PMO-BEARING LARGE DP	4
		PMO-PULLEY DUPLEX	2
		PMO-ROLLER UPPER DP	2
		PMO-ACTUATOR EMPTY	1
		PMO-IDLE ROLLER	1
		RPR-CUSHION GUIDE	1
		RCT-ROLLER LOWER DP	2
	ELA HOU-FRAME BASE IN		1
		PHOTO-INTERRUPTER	1
		FAN-DC	1
		SCREW-MACHINE	1
		SCREW-MACHINE	2
		SCREW-TAPTITE	4
		SCREW-TAPTITE	2
		SCREW-TAPTITE	2
		SCREW-TAPTITE	8
		SCREW-TAPTITE	1
		SCREW-TAPTITE	4
		SCREW-TAPTITE	2
		SCREW-TAPTITE	1
		SCREW-TAPTITE	7
		SCREW-TAPTITE	4
		SCREW-TAPTITE	3
		SCREW-TAPTITE	1
		SCREW-TAPTITE	4
		SCREW-TAPTITE	1
		SCREW-TAPTITE	3
		SCREW-TAPTITE	3
		SCREW-TAPTITE	1
		SCREW-TAPTITE	4
		SCREW-TAPTITE	2
		SCREW-TAPTITE	2
		SCREW-TAPTITE	2
		SCREW-TAPTITE	1
		SCREW-TAPTITE	1
		SCREW-TAPTITE	1
		SCREW-TAPTITE	1
		SCREW-TAPTITE	1
		SCREW-TAPTITE	1
		SCREW-TAPTITE	2
		SCREW-TAPTITE	1
		SCREW-TAPTITE	2
		SCREW-TAPTITE	1
		SCREW-TAPTITE	1
		SCREW-TAPTITE	2
		SCREW-TAPTITE	1
		SCREW-TAPTITE	2
		SCREW-TAPTITE	4
		SCREW-TAPTITE	2
		SCREW-TAPTITE	3
		SCREW-TAPTITE	2
		SCREW-TAPTITE	5
		SCREW-TAPTITE	1
		SCREW-TAPTITE	2
		RING-CS	8
		CABLE TIE	2
		CABLE TIE	1
		CABLE CLAMP	2
		SPRING-CLUTCH	2
		CBF HARNESS-LSU(18P)	1
		CBF HARNESS-DUPLEX GND	1
		CBF HARNESS-BRUSH GND	1
		CBF HARNESS-JOINT+ENGINE	1
		CBF HARNESS-EMI WIRE	1
		CBF HARNESS-CASSETTE	1
		CBF HARNESS-SCF1	1
		CBF HARNESS-VIDEO	1
		CBF HARNESS-SMPS	1

		CBF HARNESS-MP.GND				1
		CBF HARNESS-JOINT				1
		SPRING-G_FRONT				1
		FOOT-RUBBER				2
		BEARING-E/UP_R				1
		GEAR-EXIT				1
		"GEAR-EXIT/U.ID"				4
		GEAR-P/UP DRIVE				2
		"GEAR-DP.IDLE"				1
		"GEAR-EXIT.IDLE(Z17)"				1
		ICT-BRKT SUPPORTER2				1
		IPR-GROUND ICU				1
		IPR-GROUND BOTTOM				1
		IPR-FRAME ICU				1
		IPR-PLATE CST GUIDE				1
		IPR-SHIELD ICU				1
		IPR-GROUND BRKT GEAR				1
		IPR-GROUND FUSER				1
		IPR-GROUND OPC				1
		IPR-TERMINAL T/R				1
		IPR-BRKT.DUST				1
		IPR-COVER PCB				1
		IPR-GROUND DU.BRKT				1
		IPR-GROUND EXIT ROLL				1
		IPR-BAR CROSS BOTTOM				2
		IPR-GUIDE P/FRONT				1
		IPR-GND SHIELD SMPS				1
		IPR-GROUND MP CON				1
		IPR-GND BAR BOTTOM				1
		IPR-GROUND FUSER R				1
		IPR-PLATE GRIP CST				1
		ICT-SPACER FRAME				1
		PMO-ACTATOR REAR DP				1
		PMO-FRAME BASE				1
		PMO-ACTUATOR FEED				1
		PMO-CAP WIRE				1
		PMO-CAP ACT FEED				1
		PMO-CAP WIRE CST				1
		PMO-CAP TERMINAL TR				1
		PMO-HINGE GUIDE R				1
		PMO-STRIFE				1
		PMO-GUIDE EXIT FD				1
		PMO-HOLDER-G/PAPER				1
		PMO-CLEANER LSU				1
		PMO-CAP WIRE LSU				1
		PMO-LEVER STACKING				1
		PMO-LEVER SEESAW				1
		PMO-LEVER STACKING 2				1
		PMO-REAR CST ALIGN				2
		RCT-ROLLER EXIT FD				1
		"MEC-BEARING.EXIT"				1
		MEC-BRUSH				1
		ELA HOU-SOCKET CON				1
			SPRING-TONER SENSOR			3
			PMO-HOLDER_LOWER			1
			PMO-HOLDER_UPPER			1
		MEA RACK-ROLLER TR				1
			RING-E			1
			GEAR-TRANSFER			1
			MEC-ROLLER TRANSFER			1
		CABLE CLAMP				1
ELA HOU-SMPS						1
		SMPS				1
		SPRING-LINK WIRE				1
		HEAT SINK-SMPS				1
		IPR-SHIELD SMPS				1
		PMO-CAP POWER				1
		PMO-CAP WIRE SUPPORT				1
						1
						1
						1
ELA HOU-COVER MAIN		PMO-COVER-RIGHT				1
		PMO-COVER EXIT				1
		PMO-LINK TRAY				2
		ELA HOU-COVER HOUSING				1
			SCREW-TAPTITE			6
			ELA HOU-COVER TOP			1
				SCREW-TAPTITE		2
				SCREW-TAPTITE		1
				IPR-SPRING HINGE		2
				PMO-COVER TOP		1
				PMO-STOPPER HINGE		1
				MEA RACK-COVER OPEN		1
					SPRING-CS	1
					SPRING-HOOK LEVER2	1
					LABEL(P)-LSU CLEAN	1
					PMO-COVER OPEN	1
					PMO-BUTTON-OPEN	1
					PMO-HOOK OPEN	1
					PMO-STACKER	1
						1
			ELA UNIT-PNL&LCD			1
				SCREW-TAPTITE		1
				SPRING-LCD LOCKER		1
				IPR-INSULATOR PANEL		1
				PMO-HOUSING PANEL U		1
				PMO-HOUSING-PANEL L		1
				PMO-KEY-SEESAW		1
				PMO-WINDOW PANEL		1
				PMO-KEY ONLINE		1
				PMO-LCD LOCKER		1
				PBA SUB DISP-PANEL		1
				PBA SUB DISP-LCD		1
				PBA SUB DISP-PNL&LCD		1
		MEA UNIT-COVER FRONT				1
			SPRING-CS			1
			PMO-COVER-FRONT			1
			PMO-BUTTON-POWER			1
		MEA UNIT-COVER LEFT				1

All parts list

ELA HOU-BRKT MOTOR	MEA UNIT-RACK COVER REAR	PMO-COVER-LEFT	1	
		PMO-AIRDUCT	1	
		SCREW-TAPTITE	3	
		SPRING-FEED RLL	3	
		SPRING-REAR	2	
		GEAR-DUPLEX	1	
		ICT-BRKT REAR COVER	1	
		IPR-SPRING UPPER DP	1	
		PMO-COVER-REAR	1	
		PMO-BEARING LARGE DP	2	
		PMO-ROLLER UPPER DP	1	
		PMO-GUIDE INNER DP	1	
		PMO-IDLE PICK UP	3	
		RCT-ROLLER REAR DP	1	
		MEA UNIT-COVER TRAY		1
		PMO-COVER-TRAY	1	
		PMO-COVER COLOR	1	
		PMO-SUBTRAY-FIRST	1	
		PMO-SUBTRAY-SECOND	1	
	MEA UNIT-TRAY MP		1	
		ICT-SHEET SIDE GUIDE	1	
		PMO-SIDE GUIDE TRAY	1	
		PMO-TRAY-MP	1	
ELA HOU-BRKT MOTOR			1	
	GREASE-BEARING	0.001		
	MOTOR-STEP	1		
	SCREW-MACHINE	3		
	SCREW-MACHINE	2		
	WASHER-PLAIN	2		
	WASHER-PLAIN	1		
	RING-E	1		
	GEAR-118/23	1		
	GEAR-RDCN OPC	1		
	GEAR-IDLE 97	1		
	GEAR-IDLE FU	1		
	GEAR-OPC DRV2	1		
	GEAR-FUSER DRIVE	1		
	GEAR-OPC DRIVE(12)	1		
	GEAR-FEED DRIVE	1		
	IPR-BRACKET MOTOR J	1		
	IPR-BRACKET(MOTOR 21)	1		
	ELA HOU-DEVE UNIT(E)			1
ELA HOU-CONTROLLER(N)			1	
	PBA ETC-POSTSCRIPT	1		
	PBA MAIN-CONTROLLER	1		
	ELA HOU-ABZO	1		
		SCREW-MACHINE	2	
		CAP-BRKT NET OPT	1	
		PBA SUB-NPC(NEC)	1	
	MEA ETC-CONTROLLER BRKT(N)	1		
		SCREW-TAPTITE	3	
		IPR-BKT SERIAL	1	
		MEC-BRKT ICU & GASKET	1	
			IPR-BRKT ICU(B)	1
			RPR-GASKET ICU(10)	1
		RPR-GASKET ICU(20)	1	
		RPR-GASKET ICU(90)	1	
ELA HOU-FUSER ASS'Y			1	
	LAMP-HALOGEN	1		
	SCREW-TAPTITE	2		
	SPRING-RAIL	2		
	ELA HOU-COV FU UPPER	1		
		THERMOSTAT	1	
		SCREW-TAPTITE	1	
		SCREW-TAPTITE	1	
		SCREW-TAPTITE	2	
		IPR-ELECTRODE FU R	1	
		IPR-ELECTRODE FU/L	1	
		IPR-ELECTRODE M	1	
		PMO-COVER FUSER UP	1	
		PMO-CAP TERMINAL	1	
		ELA HOU-FRAME FUSER	1	
		THERMISTOR-NTC	1	
		SCREW-TAPTITE	2	
		SCREW-TAPTITE	2	
		SCREW-TAPTITE	1	
		SCREW-TAPTITE	3	
		SPRING-PR(7300)	2	
		BEARING-PRESSURE/R	2	
		BEARING-H/R L	1	
		BEARING-H/R R	1	
		GEAR-FUSER	1	
		IPR-FRAME FUSER	1	
		IPR-SPR THERMISTOR	1	
		PMO-GUIDE FRONT	1	
		PMO-RAIL FUSER L	1	
		PMO-RAIL FUSER R	1	
		RCT-ROLLER HEAT	1	
		MEC-ROLLER PR(7300)	1	
	MEA RACK-COV FU LOW	1		
	SPRING-SAPERATION	4		
	SPRING-FUSER EXIT	3		
	BEARING-EXIT FU L	2		
	BEARING-EXIT FU	2		
	GEAR-EXIT	2		
	LABEL(P)-CLEAN FELT	1		
	PMO-GUIDE CLAW	4		
	PMO-COVER FUSER LOW	1		
	ROLLER-EXIT	3		
	RCT-ROLLER EXIT FU	2		
MEA RACK-BRK GEAR FU	1			
	RING-CS	4		
	"GEAR-EXIT/U.ID"	2		
	"GEAR-EXIT,IDLE(Z17)"	2		
	PCT-SHEET H/R	1		

		PMO-BRKT FUSER GEAR	1
	MEA RACK-GUIDE REAR		1
		SPRING-ACTUATOR	1
		LABEL(P)-FUSER JAM	1
		LABEL(P)-HIGH TEMPER	1
		PMO-REAR FUSER	1
		PMO-ACTUATOR EXIT	1
	MEA UNIT-FEEDER CST		1
		TAPE-FILAMENT	0.1
		SCREW-MACHINE	1
		SCREW-TAPTITE	1
		SCREW-TAPTITE	1
		SCREW-TAPTITE	2
		SCREW-TAPTITE	1
		SCREW-TAPTITE	2
		RING-E	1
		SPRING-PLATE K/UP	1
		SPRING-LEVER	1
		SPRING-SUB PLATE	2
		LABEL(R)-CST REAR	1
		LABEL(R)-INSTRUCTION	1
		IPR-FINGER	1
		IPR-GUIDE EXT LOCK	1
		IPR-GUIDE PAPER SCF	1
		IPR-GUIDE PLT PAPER	2
		IPR-PLATE KNOCK UP	1
		IPR-PLATE SPR LOCK	1
		IPR-PLATE SUB K/UP	1
		IPR-SPR PLATE G/SIDE	1
		ICT-SHAFT SPR K/UP	1
		PMO-COVER-GUIDE EXT	1
		PMO-BUSH K/UP	2
		PMO-CAP PLATE K/UP	1
		PMO-FRAME-CASSETTE	1
		PMO-GUIDE-EXT CST	1
		PMO-GUIDE-PAPER	1
		PMO-GUIDE PAPER SIZE	1
		PMO-GUIDE-SIDE CST	1
		PMO-LINK LEVER	1
		PMO-SIDE GUIDE EXT	1
		PMO-SUB GUIDE-CST	1
		PMO-LEVER PAPER	1
		PMO-ROLLER FD R	1
		PMO-WINDOW PAPER	1
		PMO-LOCKER PLATE	1
		RPR-PAD CST	1
		"SPRING-LOCKER,PLATE"	1
	MEA RACK-PICK UP		1
		GREASE-BEARING	0.001
		GREASE-BEARING	0.001
		SCREW-TAPTITE	1
		WASHER-PLAIN	5
		RING-CS	1
		SPRING-FEED SMALL	1
		SPRING-FEED LARGE	1
		BEARING-PICK UP	4
		GEAR-P/UP DRIVE	1
		GEAR-PICK UP	1
		GEAR-FEED	1
		IPR-SHAFT FEED IDLER	2
		IPR-PAPER GUIDE FEED	1
		IPR-GROUND FEED	1
		ICT-SHAFT IDLE LARGE	1
		ICT-SUB SHAFT P/UP	1
		ICT-SHAFT FEED	1
		ICT-SHAFT PICK UP	1
		PMO-ROLLER FEED L	2
		PMO-ROLLER FEED S	1
		PMO-SUB HOLDER FEED	1
		PMO-FRAME FEED	1
		PMO-HOUSING PICK UP	1
		PMO-FEED ROLL DRIVE	1
		PMO-HOLDER FEED S	1
		PMO-HOLDER FEED L	1
		RPR-RUBBER PICK UP	1
	INA-TEST 110V		1
		PAPER-ART	0.02
		PAPER-ART	1
	PAA WOOD-LABEL ASS'Y(STA)		1
		LABEL(P)-DUPLEX	1
		LABEL(P)-ENERGY ST.	1
		"LABEL(P)-CAULSU"	1
		LABEL(P)-JAM2	1
		LABEL(P)-BLANK(ML)	2
		LABEL(P)-NPC_TEST_L	1
		LABEL(R)-LASER	1
		LABEL(R)-TR CHANGE	1
		LABEL(R)-RATING	1
		LABEL(R)-S/N(STA)	1
		MEC-BARCODE	1
	PAA WOOD-PACKING ASS'Y		1
		TAPE-OPP MASKING	1.5
		TAPE-FILAMENT	0.7
		"CUSHION—CUSHION SET,N"	1
		CUSHION—SPACER	2
		BAG-PE SET	1
		CUSHION-DEV KME	2
		CUSHION-DEV	1
		CUSHION-CST	1
	INA-ACCESSORY(XAR)		1
		S/W APPLICATION-DRIVER CD	1
		MAN(BOOK)-7000N3/XAR	1
		MAN(BOOK)-USER MANUAL	1
		LABEL(R)-CUSTOMER	1
		"MAN(CARD)-WARR, STA"	1